Unit - 1

1. REVISION

1. Write in words :
(a) Thirty eight thousand four hundred twenty two
(b) Sixty thousand nine hundred twenty three
(c) Fifty four thousand five hundred twenty four
(d) Ninty nine thousand nine hundred ninty nine
(e) Five lakh fifty four thousand nine hundred twenty seven
(f) Six lakh eighty nine thousand five hundred thirty one
(g) Six lakh thirty two thousand six hundred sixty
(h) Two lakh twenty five thousand seventy four

2. Write in numbers :
(a) 55,104 (b) 7,30,202 (c) 30,5,738 (d) 90,9,501 (f) 15,3,030

3. Write the greatest number :
(a) 98927 (b) 76429 (c) 86595 (d) 942672 (e) 4587600

4. Write the smallest number :
(a) 34654 (b) 21052 (c) 24654 (d) 24627 (e) 48262

5. Write in descending order :
(a) 862764, 824648, 82762, 45266 (b) 42626, 34684, 19246, 18464
(c) 314624, 82462, 64624, 62462

6. Write in ascending order :
(a) 42624, 44624, 96564, 846246 (b) 24624, 46246, 52226, 62462
(c) 24624, 64264, 86426, 142624

7. Fill in the blanks with > or < :
(a) 512646 > 48321 (b) 32176 < 62724 (c) 642642 > 476246
(d) 846242 > 248621 (e) 846246 > 346246 (f) 98452 < 484629

8. Write the place value of underlined digits :
(a) 2$\underline{4}$264 = 4000 (b) 96$\underline{4}$762 = 700 (c) 7$\underline{6}$2462 = 60000
(d) 84246$\underline{2}$ = 60 (e) 4$\underline{6}$246 = 6000 (f) 62$\underline{4}$624 = 4000

9. Write in short form :
(a) 84617 (b) 60485 (c) 842857 (d) 731708 (e) 82428

10. Write in expanded form :
(a) 846546 = 800000 + 40000 + 6000 + 500 + 40 + 6
(b) 60417 = 60000 + 0000 + 400 + 10 + 7
(c) 812690 = 800000 + 10000 + 2000 + 600 + 90 + 0
(d) 482657 = 400000 + 80000 + 2000 + 600 + 50 +7
(e) 846546 = 800000 + 40000 + 6000 + 500 + 40 + 6

11. Greatest no. of five digits = 99999

12. Smallest seven digit no. = 1000000, Largest four digit no. = 9999
Required No. = 1000000 – 9999 = 990001

13. Number is 97985
Place value of both 9s are 90000, 900; Difference = 90000 – 900 = 89100

14. Add :
(a) 131736 (b) 170838 (c) 1254087 (d) 127352 (e) 220106 (f) 1591750

15. Subtract :
(a) 45576 (b) 54500 (c) 23816 (d) 151037 (e) 401209 (f) 421890

16. Multiply :
(a) 26246 × 12 = 314952 (b) 6427 × 15 = 96405 (c) 192 × 100 = 19200

17. Find the quotient and remainder :
(a) Quotient = 1787, Remainder = 0 (b) Quotient = 3646, Remainder = 12
(c) Quotient = 513, Remainder = 4 (d) Quotient = 5253, Remainder = 6
(e) Quotient = 2304, Remainder = 10 (f) Quotient = 1945, Remainder = 2
(g) Quotient = 2684, Remainder = 4 (h) Quotient = 1191, Remainder = 6
(i) Quotient = 1910, Remainder = 19

18. The population of three cities of India are = 846542, 756460 and 654906
∴ The total population of India = 846542 + 756460 + 654906 = 2257908

19. Cost of tables = ₹ 16462, Cost of Chairs = ₹ 14240, Cost of flower pots = ₹ 890
Total expenses = 16462 + 14240 + 890 = 31592

20. A shopkeeper bought goods of = ₹ 43247
He returned the good = ₹ 32580
∴ Amount of remaining goods = 43247 – 32580 = ₹ 10667

21. A box contains = 1924 apples
Total no. of apples in such 20 boxes = 1924 × 20 = 38480 apples

22. A pen costs = ₹ 22
Cost of such 300 pens = ₹ 22 × 300 = ₹ 6600

23. Cost of 15 chairs = ₹ 1365
Cost of one chair = 1365 ÷ 15 = 91
∴ Cost of one chair = ₹ 91

24. Kusum has 75 nots of = ₹ 50
Total money she have = ₹ 50 × 75 = ₹ 3750

25. Apples are packed in 30 boxes = 12420
Total no. of apples in one box = 12420 ÷ 30 = 414 apples

26. A man earns in a month = ₹ 6000
He spent = ₹ 3000
His savings = ₹ 6000 – ₹ 3000 = ₹ 3000

27. A pen costs = ₹ 25.20
Cost of such 25 pens = ₹ 25.20 × 25 = ₹ 630

28. Cost of an electric pole = ₹ 10,000
Total cost of such 15 poles = ₹ 10,000 × 15 = ₹ 150000

29. Write in the fractional form :
One-Eighth = $\frac{1}{8}$, Four-Seventh = $\frac{4}{7}$, Four-Sixth = $\frac{4}{6}$, Five-Seventh = $\frac{5}{7}$, Four-Tenth = $\frac{4}{10}$,
One-Fifth = $\frac{1}{5}$, Three-Fourth = $\frac{3}{4}$ and Four-Eighth = $\frac{4}{8}$

30. Put > or < in the boxes :
(a) $\frac{3}{7} > \frac{2}{7}$ (b) $\frac{8}{11} > \frac{5}{11}$ (c) $\frac{8}{25} < \frac{12}{25}$ (d) $\frac{4}{8} > \frac{2}{8}$

31. Solve the following :
(a) $\frac{1}{5} + \frac{1}{5} = \frac{1+1}{5} = \frac{2}{5}$ (b) $\frac{5}{8} - \frac{4}{8} = \frac{5-4}{8} = \frac{1}{8}$ (c) $\frac{1}{9} + \frac{1}{9} = \frac{1+1}{9} = \frac{2}{9}$
(d) $\frac{8}{11} - \frac{2}{11} = \frac{8-2}{11} = \frac{6}{11}$

32. (a) 87 kg 225 g (b) 602 m 71 cm (c) 111 *l* 741 m*l*

33. (a) 5 km 578 m (b) 42 *l* 455 m*l* (c) 4 kg 500 g

34. (a) 2,006 m*l* = 2 *l* 006 m*l* (b) 15 kg 250 g = 15250 g

(c) 6002 paise = 60 ₹ 02 Paise (d) 5024 m = 5 km 24 m
(e) 25 g 15 mg = 25015 mg (f) 8362 *l* = 8 *l* 362 m*l*
(g) 4246 mg = 4 g 246 mg

35. Jaid's weight = 65 kg 125 g, Harish's weight = 52 kg
= 65 kg 125 g – 52 kg = 13 kg 125 g
Jaid is more heavy 13 kg 125 g or 13·125 kg

36. A shirt is made of cloth = 5 m 20 cm
Total length of cloth of such 30 shirts = 5 m 20 cm × 30 = 156 m

37. Length of a bundle of wire = 50 m 50 cm
Total length of 50 bundles of wire = 50 m 50 cm × 50 = 2525 m

38. A box contains = 2 kg 500 g ghee
Total weight of 150 boxes = 2 kg 500 g × 150 = 375 kg
As total weight = 375 kg

39. Total lngth of a rope = 8 m
Length of each piece = 10 cm
No. of total pieces we get from 8 m long rope = 8 m ÷ 10 cm
= 800 cm ÷ 10 cm = 80 [∵ 1 m = 100 cm]
No. of pieces = 80

40. Write the given time in a.m. and p.m. :
(a) 2 : 30 evening = 2 : 30 p.m. (b) 4 : 20 morning = 4 : 20 a.m.
(c) 12 : 10 night = 12 : 10 a.m. (d) 8 : 20 night = 8 : 20 p.m.

41. There are 365 days in a year.

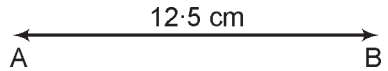
42. In a cylinder, No. of faces = 2, No. of corners = 0, No. of vertices = 0

43. School starts at time = 7 : 30 a.m.
School closes at time = 2 : 30 p.m.
∴ Total working time of school = 14 : 30 – 7 : 30 = 7 : 00 **Ans.** 7 hours

44. Leap year is completely divided by 4
Hence 1996, 1980, 2000, 2008 are leap years.

45. Four sides of rectangle = 4 cm, 2 cm, 4 cm and 2 cm
Perimeter of rectangle = sum of all sides = 4 cm + 2 cm + 4 cm + 2 cm = 12 cm

46.



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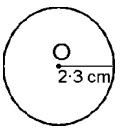


2. NUMBER SYSTEM

Exercise - 1

1. Write in words :
(a) Seventy eight lakh twenty six thousand four hundred sixty two
(b) Fifty four lakh sixty two thousand six hundred twenty four
(c) Four crore eighty two lakh forty six thousand two hundred seventy four
(d) Four crore twenty two lakh eighty two thousand nine hundred twenty four
(e) Nine crore twenty five lakh sixty four thousand six hundred fifty five
(f) Eighty two lakh forty six thousand two hundred seventy six

2. Write in numbers :
(a) 640408 (b) 6405301 (c) 60522912 (d) 46507505
(e) 30430735 (f) 26030002

3. Write in expanded form :
(a) 4965460 = 4000000 + 900000 + 60000 + 5000 + 400 + 60 + 0

(b) 8564625 = 8000000 + 500000 + 60000 + 4000 + 600 + 20 + 5
(c) 7526464 = 7000000 + 500000 + 20000 + 6000 + 400 + 60 + 4
(d) 9000625 = 9000000 + 000000 + 00000 + 0000 + 600 + 20 + 5
(e) 6346276 = 6000000 + 300000 + 40000 + 6000 + 200 + 70 + 6
(f) 2526276 = 2000000 + 500000 + 20000 + 6000 + 200 + 70 + 6
(g) 8462462 = 8000000 + 400000 + 60000 + 2000 + 400 + 60 + 2

4. Write in expanded form :
(a) 8246264 = 8000000 + 200000 + 40000 + 6000 + 200 + 60 + 4
(b) 6234627 = 6000000 + 200000 + 30000 + 4000 + 600 + 20 + 7
(c) 5254627 = 5000000 + 200000 + 50000 + 4000 + 600 + 20 + 7
(d) 9624627 = 9000000 + 600000 + 20000 + 4000 + 600 + 20 + 7
(e) 6464625 = 6000000 + 400000 + 60000 + 4000 + 600 + 20 + 5
(f) 4234624 = 4000000 + 200000 + 30000 + 4000 + 600 + 20 + 4

5. Write in short form :
(a) 42562437 (b) 42086323 (c) 43226284 (d) 4228356 (e) 5342627

6. Place value of each of digit : **9, 20, 400, 5000, 60000, 700000, 8000000**

7. Write the place value of :
(a) 60 (b) 500 (c) 4000000 (d) 600000 (e) 1000 (f) 20000
(g) 20000 (h) 700

8. (a) Largest no. = 765421, Smallest no. = 124567
(b) Largest no. = 9875400, Smallest no. = 4005789
(c) Largest no. = 98643210, Smallest no. = 10234689

9. Largest seven digit no. = 9999999
In words : Ninty nine lakh ninty nine thousand nine hundred ninty nine.

10. Smallest seven digits no. = 1000000, Largest six digits no. = 999999
Required no. = 1000000 – 999999 = 1

Exercise - 2

1. Put >, < or = in the boxes :
(a) < (b) < (c) < (d) = (e) > (f) =

2. Write the largest number from the given numbers :
(a) 8972432 (b) 6496610 (c) 4739435 (d) 94648954 (e) 54625427

3. Write the smallest number from the given numbers :
(a) 122542 (b) 769254 (c) 54673251 (d) 1824622 (e) 182640

4. Write in ascending order :
(a) 956321, 4876290, 7292396, 8263420, 15264624
(b) 1000000, 1000025, 1000048, 1006820, 10090024
(c) 7785432, 7785435, 7785921, 7785972, 7798999
(d) 8246241, 8246242, 8262461, 8262462, 8296246
(e) 24620, 182324, 182462, 1652464, 16423424

5. Write in descending order :
(a) 12462521, 6512281, 4518263, 3269519, 753251
(b) 4895425, 4895256, 3251194,2648246, 863220
(c) 26532195, 26532172, 26532164, 26532108, 23005691
(d) 3443325, 1211246, 1211240, 1211240, 1124210
(e) 1008921, 1005326, 1000632, 1000325, 1000007.

Exercise - 3

1. Write these number names in numerals :
(a) 512, 711, 520 (b) 400, 205, 412 (c) 20, 005, 005 (d) 605, 000, 320 (e) 600, 313, 000

2. Write the following number names in International place value chart :
(a) Seven hundred two million, two hundred fifty four thousand two hundred sixty one
(b) Forty three million, eight hundred seventy nine thousand five hundred ten
(c) One hundred seventy two million, six hundred twenty thousand, two hundred fifty
(d) Five hundred million nine
(e) Four hundred seventy eight million, two hundred thousand, two hundred fifty six
(f) Nine hundred twenty five thousand, four hundred sixty two

3. One crore = Ten million **4.** One million = Ten Lakh

5. Largest no. of seven digits = 9,999,999

In number Names : Nine million nine hundred ninety nine thousand nine hundred ninety nine.

3. ROMAN NUMBER

Exercise - 4

1. Fill by writing the numbers in Hindu-Arabic notation :
(a) 4, 6, 9, 11, 8, 19 (b) 26, 38, 43, 29, 24, 40 (c) 31, 39, 49, 25, 44, 45

2. Fill by writing the numbers in Roman notation :
(a) XXI, XXVI, XXXII, XXXVII, XLIII, L
(b) XI, XXVII, XXXIII, XXXVIII, XLIV, XLIX
(c) XXIII, XXVIII, XXXIV, XXXIX, XLV, XLVIII

3. Complete the following :
(a) XXXIII, **XXXIV**, **XXXV**, XXXVI, **XXXVII**, **XXXVIII**, **XXXIX**, XL
(b) XXXIX, XL, **XLI**, **XLII**, **XLIII**, **XLIV**, **XLV**, XLVI
(c) XXX, **XXIX**, XXVIII, XXVII, **XXVI**, **XXV**, **XXIV**, **XXIII**
(d) **L**, XLIX, XLVIII, **XLVII**, **XLVI**, **XLV**, **XLIV**, XLIII.

4. Fill with '>' or '<' and = :

(a)	XXI	=	XXI	(b)	XXIX	<	XXX	(c)	XLV	>	XLIV
(d)	XXXVII	<	XLVI	(e)	XXV	<	XLII	(f)	XLIX	>	XL

5. Fill with '>', '<' or = :

(a)	50	=	L	(b)	41	>	XXVI	(c)	XLIV	<	46
(d)	XLIV	<	49	(e)	XXXI	=	25 + 6	(f)	35 + 4	<	XLVIII
(g)	XIX + XXX =		50 – 1	(h)	XI	>	27 ÷ 3	(i)	25 ÷ 5	<	XXX – XX

6. In each of the following, write the Roman numerals in Hindu-Arabic notation and then add them. Write the answer in Roman numerals :
(a) XI and XXXVI = 11 and 36
Add : 11 + 36 = 47
In Roman Numeral = XLVII
(b) XL and IX = 40 and 9
Add : 40 + 9
In Roman Numeral = XLIX
(c) XLVIII and II = 48 and 2
Add : 48 + 2 = 50
In Roman Numeral = L
(d) XLII and V = 42 and 5
Add : 42 + 5
In Roman Numeral = XLVII
(e) XLIV and IV = 44 and 4
Add : 44 + 4 = 48
In Roman Numeral = XLVIII
(f) XXXVII and IX = 37 and 9
Add : 37 + 9
In Roman Numeral = XLVI

7. Write the answers in Roman numerals :
(a) XXX – XXIV = 30 – 24
= 6 = VI
(b) L – XL = 50 – 40
= 10 = X
(c) XXXVI ÷ IX = 36 ÷ 9
= 4 = IV
(d) XLI + IX = 41 + 9
= 50 = L

8. One correct Roman numeral is given in each of the following pairs. Write the correct numeral :
(a) XL (b) XXXIV (c) XLIV (d) X (e) XXX

9. Arrange the following Roman numerals in ascending order :
(a) XXI, XXXI, XLI, XLV, L (b) XXII, XXXII, XLII, XLVI, XLIX

10. Arrange the following Roman numerals in descending order :
(a) XLVIII, XLVII, XLIV, XXXIII, XXIII (b) XLIII, XXXVI, XXXIV, XXIV

4. ADDITION AND SUBTRACTION OF NUMBERS

Exercise - 5

1. Add :
(a) 12380742 (b) 11063857 (c) 121507267 (d) 105319880 (e) 106663049 (f) 14042230

2. 2. Fill in the blanks :
(a) 864624 + 0 = **864624** (b) 0 + 846275 = **846275**
(c) 3489327 + 496321 = **3985648** (d) 84059 + 3489327 = **3573386**

3. Add the following :
(a) 1246242 + 1424005 + 7329632 = 9999879
(b) 20854793 + 48469240 + 84624625 = 153948658
(c) 46246246 + 54231 + 9824620 = 56125097
(d) 341684 + 1462461 + 73824692 = 75628837

4. Largest eight digit no. = 99999999 Smallest six digit no. = 100000
Add : 99999999 + 100000 = 100099999

5. Find the number :
(a) 8794273 + 5458 = 8799731 (b) 3256312 + 76246 = 3332558
(c) 546246 + 10000 = 556246

6. Write correct digit in the :
(a) 527**0**543 + **6**735821 + 7419216 = 19**4**25580
(b) 43**4**8251 + 946**3**432 + 7**8**07673 = 21619**5**6

Exercise - 6

1. No. of Males = 54624, No. of Females = 45246, No. of Children = 28242
Total Population = 54624 + 45246 + 28242 = 128112
Total population in city = 128112

2. No. of wheat sacks = 462462, No. of sugar sacks = 292464, No. of rice sacks = 252664
Total no. of sacks = 462462 + 292464 + 252664 = 1007590
Total no. of sacks in godown = 1007590

3. No. of girls = 582468, No. of boys = 4329242 more than girls
= 4329242 + 582468 = 4911710
∴ No. of boys in university = 4911710

4. No. of votes second candidate got = 789273
No. of votes first candidate got = 789273 + 396424 = 1185697
Hence, the first candidate got 1185697 votes.

5. Amount of Kafil = ₹ 7642612
Amount of Jaid = ₹ 583042
Amount of Ahmed = ₹ 4327412
∴ Total amount of them = 7642612 + 583042 + 4327412 = ₹12553066

6. No. of students passed in first division = 708462
No. of students passed in second division = 1824652
No. of students passed in third division = 543218
Total no. of passed students : 708462 + 1824652 + 543218 = 3076332 studens

7. A dairy sold milk in first month = 365046 *l*
A dairy sold milk in second month = 324624 *l*
A dairy sold milk in third month = 432406 *l*
Total milk sold by dairy = 365046 + 324624 + 432406 = 1122076
∴ Dairy sold 1122076 *l* milk in three months.

8. Biggest no. = 97653100, Smallest no. = 10035679
Sum of these numbers = 97653100 + 10035679 = 107688779
∴ Required no. is 107688779

9. Amount donate by government employees = ₹ 9900000
Amount donate by foreign help = ₹ 8466262
Amount donate by prime minister = ₹ 26262624
∴ Total amount collected for earthquake relief fund is :
9900000 + 8466262 + 26262624 = 44628886
Hence, total amount is ₹ 44628886

Exercise - 7

1. Find the differences :
(a) 2986701 (b) 21667482 (c) 4383984 (d) 24400835 (e) 3979442 (f) 2805659

2. Write the correct digit in :
(a) 3**68588**5 – 249**2**357 = 1193528 (b) 57**8**9635 – 3**3**4562**4** = 2444**0**11

3. Smallest seven digit no. = 1000000, Largest six digit no. = 999999
Difference = 1000000 – 999999 = 1

4. 28492643 – 8762462 = 19730181
∴ Required no. is 19730181

5. 587563121 – 522469 = 587040652
Required No. is 587040652

6. Find the number :
(a) 7924321 – 9642 = 7914679 (b) 3892545 – 684271 = 3208274
(c) 64273215 – 8532713 = 55740502 (d) 9843215 – 246891 = 9596324

7. Fill in the blanks :
(a) 6534647 – 0 = **6534647** (b) 62646934 – 62646934 = **0**

8. Subtract :
(a) 2626462 – 162462 = 2464000 (b) 9532743 – 8562846= 969897
(c) 6321246 – 2847624 = 3473622 (d) 4782646 – 3646461 = 1136185

Exercise - 8

1. Sum of two numbers = 6426664, First number = 2424642
Other number = 6426664 – 2424642 = 4002022
∴ Second no. is 4002022

2. Total population of village = 7642
It is less than from 1 lakh is = 100000 – 7642 = 92358
∴ Required number is 92358

3. In 2001 the population of city = 546462, In 2002 the population inccreases = 6426475
Growth of population = 6426475 – 546462 = 5880013
Thus growth of population is 5880013.

4. Shopkeeper bought things of = ₹ 8462764, Shopkeeper sold things of = ₹ 3546264
∴ Value of remianing things is = 8462764 – 3546264 = 4916500
Hence things of ₹ 4916500 is remained.

5. In 1947 population of India = 40,87,56,970
In 2002 population increases = 81,26,46,246
Growth in 55 years = 812646246 – 408756970 = 403889276
Thus growth of population in 55 years is 403889276.

6. Man gets a loan from bank = ₹ 500000
He returns an instalment = ₹ 75000
∴ Rest amount of loan is = 500000 – 75000 = 425000
Hence, rest amount of loan is ₹ 425000.

7. Cost of wheat = ₹ 68750, Cost of rice = ₹ 112545
∴ Required money is = 112545 – 68750 = 43795
Hence, money of rice is ₹ 43795 more than the cost of wheat.

8. Total no. of passed students = 462642
No. of students got first division = 14624
No. of students got second division = 246246
Total no. of students got first and second division is : 246246 + 14624 = 260870
Now, the total no. of students got third division = 462642 – 260870 = 201772

9. Total no. of votes = 864240
No. of cancelled votes = 10000
∴ Remained votes = 864240 – 10000 = 854240
No. of first candidate got = 526465
∴ No. of votes second candidate got = 854240 – 526465 = 327775
Hence, the total votes of second candidate is 327775.

5. MULTIPLICATION OF NUMBERS

Exercise - 9

1. Find the product :

(a) $645 \times 100 = 64500$

(b) $9876 \times 2000 = (9876 \times 2) \times 1000$
$= 19752 \times 1000 = 19752000$

(c) $654 \times 10000 = 6540000$

(d) $75 \times 500 = (75 \times 5) \times 100$
$= 375 \times 100 = 37500$

(e) $425 \times 900 = (425 \times 9) \times 100$
$= 3825 \times 100 = 382500$

(f) $760 \times 7000 = (760 \times 7) \times 1000$
$= 5320 \times 1000 = 5320000$

(g) $400 \times 800 = (4 \times 100) \times (8 \times 100)$
$= (4 \times 8) \times (100 \times 100)$
$= 32 \times 10000 = 320000$

(h) $3641 \times 400 = (3641 \times 4) \times 100$
$= 14564 \times 100 = 1456400$

(i) $60 \times 2000 = (60 \times 2) \times 1000$
$= 120 \times 1000 = 120000$

(j) $350 \times 342 = 119700$

(k) $560 \times 324 = 181440$

(l) $740 \times 724 = 535760$

(m) $340 \times 252 = 85680$

(n) $8764 \times 715 = 6266260$

(o) $600 \times 375 = 225000$

(p) $750 \times 8435 = 6326250$

(q) $7642 \times 2004 = 15314564$

(r) $6654 \times 7000 = (6654 \times 7) \times 1000$
$= 46578 \times 1000 = 46578000$

(s) $46241 \times 4624 = 213818384$

(t) $6924 \times 4000 = (6924 \times 4) \times 1000$
$= 27696 \times 1000 = 27696000$

(u) $308 \times 6000 = (308 \times 6) \times 1000$
$= 1848 \times 1000 = 1848000$

(v) $7420 \times 87053 = 645933260$

(w) $6004 \times 572 = 3434288$

(x) $2564 \times 6724 = 17240336$

2. Solve the following :

(a) $26 \times 32 \times 10 = (26 \times 32) \times 10$
$= 832 \times 10 = 8320$

(b) $10 \times 20 \times 30 = (10 \times 20) \times 30$
$= 200 \times 30 = 6000$

(c) $40 \times 70 \times 8 = (40 \times 70) \times 8$
$= 2800 \times 8 = 22400$

(d) $700 \times 54 \times 70 = (700 \times 54) \times 70$
$= 37800 \times 70 = 2646000$

(e) $800 \times 200 \times 20 = (800 \times 200) \times 20$
$= 160000 \times 20 = 3200000$

(f) $50 \times 25 \times 6 = (50 \times 25) \times 6$
$= 1250 \times 6 = 7500$

3. Fill in the blanks :

(a) $4164 \times \mathbf{0} = 0$ (b) $\mathbf{1} \times 2005 = 2005$ (c) $0 \times 42640 = \mathbf{0}$

(d) $8246 \times \mathbf{1} = 8246$ (e) $7624 \times 95 = 95 \times \mathbf{7624}$ (f) $7240 \times 1 = \mathbf{7240}$

Exercise - 10

1. Cost of a colour T.V. = ₹ 7500
Total cost of 250 such coloured T.V. = 7500 × 250 = ₹ 1875000

2. No. of students = 4260, Monthly fee of a student = ₹ 200
Total fees of 4260 students = 4260 × 200 = 852000
∴ Total fees of students in a month is ₹ 852000.

3. A box contains = 500 chocoloates
Total no. of chocolates in 52 boxes = 500 × 52 = 26000
∴ So total no. of chocolates is 26000.

4. No. of mangoes in a basket = 670
Total no. of mangoes in 245 baskets = 670 × 245 = 164150
So total no. of mangoes is 164150.

5. No. of apples in a box = 156
No. of apples in 225 boxes = 225 × 156 = 35100
So, the total no. of apples sold by fruit seller = 35100

6. No. of pens in a pack = 144
Total no. of pens in 296 packs = 296 × 144 = 42624 pens

7. Monthly income of a company = ₹ 984762
Annual income of company = 984762 × 12 = 11817144
∴ The total amout is ₹ 11817144

8. No. of handkerchief in a packet = 900
Total no. of handkerchief in 460 packets = 900 × 460 = 414000
∴ The total no. of handkerchief is 414000.

9. Cost of a bicycle = ₹ 1650
Cost of 450 bicycles = 1650 × 450 = 742500
∴ The total cost of 450 bicycles = ₹ 742500

10. Weight of a wheat sacks = 100 kg
Weight of 70 such sacks = 100 × 70 = 7000
∴ The total weight of 70 wheat sacks is 7000 kg.

11. No. of flowers to make a garland = 144
No. of flowers to make 2000 garlands = 2000 × 144 = 288000
∴ The total no. of flowers = 288000

12. A shoe factory makes pairs of shoes in a day = 600
Total pairs made in one year = 600 × 365 = 219000
∴ The total no. of pairs of shoes = 219000

13. Cost of a bicycle = ₹ 1750
Cost of 1000 such bicycls = 1750 × 1000 = 1750000
∴ The total cost of bicycls = ₹ 1750000

14. No. of labours in a factory = 3000
Per month wages of a labour = ₹ 3500
Total wages of the labours = 3500 × 3000 = 10500000
∴ The total wages of labours per month = ₹ 10500000

15. No. of medicine tablets in a box = 2600
Total tablets in 1200 boxes = 2600 × 1200 = 3120000
∴ The total no. of tablets = 3120000

6. DIVISION OF NUMBERS

Exercise - 11

1. Fill in the blanks :
(a) 6505 ÷ 1 = **6505** (b) 9876 ÷ 9876 = **1** (c) 9264 ÷ 9264 = **0**
(d) 0 ÷ 1564 = **0** (e) 6540 ÷ 1 = **6540** (f) 0 ÷ 6400 = **0**

2. Find quotient and Remainder :
(a) 20 quotient, remainder 0 (b) quotient 426, remainder 2
(c) quotient 292, remainder 64 (d) quotient 16, remainder 450
(e) quotient 21, remainder 94 (f) quotient 90, remainder 0
(g) quotient 45, remainder 0 (h) quotient 76, remainder 24
(i) quotient 10, remainder 575

3. Find Remainder :
(a) 0 (b) 9 (c) 15 (d) 25 (e) 33 (f) 9 (g) 12 (h) 0 (i) 25 (j) 20 (k) 1 (l) 10 (m) 48 (n) 25 (o) 37 (p) 71

4. Divide and find the Quotient and Remainder :
(a) quotient 299, remainder 27 (b) quotient 188, remainder 49
(c) quotient 103, remainder 67 (d) quotient 20842, remainder 16
(e) quotient 1008, remainder 46 (f) quotient 2053, remainder 26
(g) quotient 2149 remainder 5 (h) quotient 281, remainder 8
(i) quotient 709, remainder 3 (j) quotient 426, remainder 32
(k) quotient 298, remainder 34 (l) quotient 811, remainder 19

5. Fill in the blanks :

(a)	82464 ÷ 1000	=	Quotient	=	**82**	Remainder	=	**464**
(b)	48321 ÷ 10	=	Quotient	=	**4832**	Remainder	=	**1**
(c)	92462 ÷ 10	=	Quotient	=	**9246**	Remainder	**=**	**2**
(d)	75420 ÷ 10000	=	Quotient	=	**7**	Remainder	=	**5420**

Exercise - 12

1. No. of trees in 40 rows = 8000
No. of trees in a row = 8000 ÷ 40 = 200
∴ The total no. of trees in a row = 200

2. Product of two numbers = 22500
First no. = 75,
Second no. = 22500 ÷ 75 = 300
So required no. is 300.

3. Total amount of 25 equal shares = ₹ 125000
Total amount in each share = 125000 ÷ 25 = 5000
So each share has ₹ 5000.

4. No. of oranges in a basket = 150
Total no. of baskets for 13500 oranges
= 13500 ÷ 150 = 90
∴ The total no. of baskets = 90

5. Cost of 42 bicycles = ₹ 42000
Cost of one bicycle = 42000 ÷ 42 = 1000
So the cost of a bicycle is ₹ 1000.

6. To get the required no. we divide 26510 by 55, So
26510 ÷ 55 = 482
∴ The required no. is 482

7. Five digit largest no. = 99999
To get required no. we divide 99999 by 93,
99999 ÷ 93 = 1075
Quotient = 1075, Remainer = 24
by subtracting remainder 24 from 99999
We will get actual no. 99999 – 24 = 99975
Thus required no. = 99975

8. For this we divide ₹ 6240 by ₹ 20,
6240 ÷ 20 = 312
So the no. of notes in ₹ 6240 = 312

9. Weigh of a book box = 20 kg
No. of book box in 2240 kg weight
= 2240 ÷ 20 = 12
So the total no. of boxes is 112.

10. Total seats of school = 660
No. of seats in a class = 660 ÷ 12 = 55
∴ The total no. of seats in a class is 55.

11. No. of rice sacks can be loaded in a truck = 150
No. of trucks which can be loaded
10500 rice sacks = 10500 ÷ 150 = 70
∴ The total no. of trucks = 70

12. 60 minutes = 1 hour
4200 minutes = 4200 ÷ 60 = 70
So there are 70 hours in 4200 minutes.

13. No. of flowers to make a garland = 132
No. of garlands which can be made from
36935 flowers = 36935 ÷ 132 = 279
∴ So, the no. of garlands = 279
and no. of remaining flowers = 107

Formative Assessment - 1 (Lesson 1 to 6)

1. Write in words :
(a) Thirty eight thousand four hundred twenty two
(b) Sixty thousand nine hundred twenty three
(c) Fifty four thousand five hundred twenty four
(d) Ninty nine thousand nine hundred ninty nine

2. Fill in the blanks with > or < :
(a) 512646 > 48321 (b) 32176 < 62724(c) 642642 > 476246 (d) 846242 > 248621

3. Multiply :
(a) 26246 × 12 = 314952 (b) 6427 × 15 = 96405 (c) 192 × 100 = 19200

4. There are 365 days in a year.

5. In a cylinder, No. of faces = 2, No. of corners = 0, No. of vertices = 0

6. Write the place value of :
(a) 60 (b) 500 (c) 4000000 (d) 600000

7. Put >, < or = in the boxes :
(a) < (b) < (c) < (d) =

8. Complete the following :
(a) XXXIII, **XXXIV**, **XXXV**, XXXVI, **XXXVII**, **XXXVIII**, **XXXIX**, XL
(b) XXXIX, XL, **XLI**, **XLII**, **XLIII**, **XLIV**, **XLV**, XLVI

9. Find the number :
(a) 8794273 + 5458 = 8799731 (b) 3256312 + 76246 = 3332558

10. Find the number :
(a) 7924321 – 9642 = 7914679 (b) 3892545 – 684271 = 3208274

11. Find the product :
(a) 645 × 100 = 64500 (b) 9876 × 2000 = (9876 × 2) × 1000
= 19752 × 1000 = 19752000 (c) 654 × 10000 = 6540000

12. A shoe factory makes pairs of shoes in a day = 600
Total pairs made in one year = 600 × 365 = 219000
∴ The total no. of pairs of shoes = 219000

13. Cost of a bicycle = ₹ 1750
Cost of 1000 such bicycls = 1750 × 1000 = 1750000
∴ The total cost of bicycls = ₹ 1750000

14. No. of labours in a factory = 3000
Per month wages of a labour = ₹ 3500
Total wages of the labours = 3500 × 3000 = 10500000
∴ The total wages of labours per month = ₹ 10500000

15. No. of rice sacks can be loaded in a truck = 150
No. of trucks which can be loaded 10500 rice sacks = 1050 ÷ 1500 = 70
∴ The total no. of trucks = 70

7. MIXED OPERATIONS

Exercise - 13

1. Solve the following :

(a) $15 - 40 + 85 - 50 = (15 + 85) - 50 - 40$
$= 100 - 90 = 10$

(b) $30 + 28 - 70 + 40 = 30 + 28 + 40 - 70$
$= 98 - 70 = 28$

(c) $400 - 600 \div 30 \times 20 = 400 - 20 \times 20$
$= 400 - 400 = 0$

(d) $200 - 125 + 27 - 48 = 200 + 27 - 125 - 48$
$= 227 - 173 = 54$

(e) $20 + 78 \div 3 \times 5 = 20 + 26 \times 5$
$= 20 + 130 = 150$

(f) $150 - 14 \times 2 + 210 - 12 = 150 - 28 + 210 - 12$
$= 150 + 210 - 28 - 12 = 360 - 40 = 320$

(g) $645 + 864 \times 24 \div 8 - 762$
$= 645 + 864 \times 3 - 762$
$= 3237 - 762 = 2475$

(h) $120 \times 8 + 240 = 960 + 240$
$= 1200$

(i) $8000 \div 25 \times 6 + 800 - 1025$
$= 320 \times 6 + 800 - 1025$
$= 1920 + 800 - 1025$
$= 2720 - 1025 = 1695$

(j) $20 \times 970 \div 10 + 256 = 20 \times 97 + 256$
$= 1940 + 256$
$= 2196$

2. Cost of a chair = ₹ 120
Cost of 3 chairs = 120 ×3 = ₹ 360
Cost of a table = three times the cost of a chair = ₹ 3 × 120 = ₹ 360
∴ Cost of 4 tables = 4 × 360 = ₹ 1440
∴ Total cost of 3 chairs and 4 tables = ₹ (360 + 1440) = ₹ 1800

3. No. of laddoos are distributed among 35 children = 700
No. of laddoos have each studen = 700 ÷ 35 = 20
∴ Each studentt has 20 laddoos.
No. of laddoos in box put by first 5 students = 5 × 20 = 100 laddoos
No. of laddoos in box put by second 6 students = 6 × 5 = 30 laddoos
∴ The total no. of laddoos in the box put by them = 100 + 30 = 130 laddoos

4. No. of flowers to make a garland = 30
No. of flowers to make 6 garlands = 30 × 6 = 180 flowers
No. of flowers to prepare a flower vase = $\frac{1}{3} \times 30$ or $30 \div 3 = 10$ flowers
No. of flowers to prepare 10 flowers vases = 10 × 10 = 100 flowers
Thus, the total no. of flowers needed to make 6 garlands and 10flower vases
= 180 + 100 = 280 flowers.

5. No. of toffees in a packet = 6
No. of toffes in 15 packet = 15 × 6 = 90
No. of toffees she gave eight children,eight tofees each of them = 8 × 8 = 64

No. of toffees she gave to her brother = 4
∴ The total no. of toffees gave by her = 64 + 4 = 68
∴ No. of left toffees with her = 90 – 68 = 22 toffees.

6. Population of a city = 35560, No. of women = 5760
No. of males = double of women = 2 × 5760 = 11520
Then, the no. of children = Total population – (sum of no. of males and females)
= 35560 – (5760 + 11520) = 35560 – 17280 = 18280.

8. MULTIPLICATION OF FACTORS

Exercise - 14

1. Write the first five multiples (except 0) of the following :

(a) 6
First 5 multiplies of 6 are
6 × 1 = 6, 6 × 2 = 12, 6 × 3 = 18,
6 × 4 = 24, 6 × 5 = 30
∴ 6, 12, 18, 24, 30

(b) 8
First 5 multiplies of 8 are
8 × 1 = 8, 8 × 2 = 16, 8 × 3 = 24,
8 × 4 = 32, 8 × 5 = 40
∴ 8, 16, 24, 32, 40

(c) 9
First 5 multiplies of 9 are
9 × 1 = 9, 9 × 2 = 18, 9 × 3 = 27,
9 × 4 = 36, 9 × 5 = 45
∴ 9, 18, 27, 36, 45

(d) 13
First 5 multiplies of 13 are
13 × 1 = 13, 13 × 2 = 26, 13 × 3 = 39,
13 × 4 = 52, 13 × 5 = 65
∴ 13, 26, 39, 52, 65

(e) 17
First 5 multiplies of 17 are
17 × 1 = 17, 17 × 2 = 34, 17 × 3 = 51,
17 × 4 = 68, 17 × 5 = 85
∴ 17, 34, 51, 68, 85

(f) 20
First 5 multiplies of 20 are
20 × 1 = 20, 20 × 2 = 40, 20 × 3 = 60,
20 × 4 = 80, 20 × 5 = 100
∴ 20, 40, 60, 80, 100

2. Write the four next multiples of the following :
(a) 15, 18, 21, 24 (b) 25, 30, 35, 40 (c) 30, 36, 42, 48 (d) 35, 42, 49, 56

3. Fill in the blanks :
(a) 5 × 9 = 45 : 45 is multiple of **5** and **9**.
(b) 8 × 3 = 24 : 24 is multiple of **8** and **3**.
(c) 9 × 8 = 72 : 72 is multiple of **9** and **8**.

4. Is first number is multiple of second number tick (✓) or cross (✗) :
(a) 42, 6 (✓) (b) 41, 7 (✗) (c) 31, 5 (✗) (d) 51, 17 (✓)
(e) 39, 13 (✓) (f) 22, 14 (✗) (g) 40, 10 (✓) (h) 24, 9 (✗)

5. Separate even and odd numbers in the given numbers :
even numbers—24, 40, 76, 100, 18 odd numbers—7, 31, 73, 19, 81, 123

6. Separate odd numbers in the given numbers :
odd numbers—73, 77, 61, 75, 79, 1, 37

7. Separate the even numbers in the given numbers :
even numbers—28, 62, 36, 84, 340, 86

8. All the odd numbers betwen 51 and 67 are : 53, 55, 57, 59, 61, 63, 65

9. All the even numbers between 24 and 48 are : 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46

10. 1 (one) is that smallest no. which when added in an even no. then we get odd no.

11. 1 (one) is that smallest no. which when subtracted in an even no. then we get odd no.

12. Smallest multiple of 18 = 18 × 1 = 18

13. Seventh multiple of 14 = 14 × 7 = 98

14. Fifth multiple of 16 = 16 × 5 = 80

15. The multiples of 20 between 25 and 108 are : 40, 60, 80, 100

16. 1 (one) is that no. which is multiple of all the numbers.

17. Smallest prime even no. = 2
18. Smallest even no. of two digits is 10.

Exercise - 15

1. Find all the factors of the given numbers :

(a) 7 =
Factors of 7 are
= 1 × 7
= 1, 7

(b) 8
Factors of 8 are
= 1 × 8 = 8, 2 × 4 = 8
= 1, 2, 4, 8

(c) 23
Factors of 23 are
= 1 × 23 = 23
= 1, 23

(d) 21
Factors of 21 are
= 1 × 21 = 21, 3 × 7 = 21
= 1, 3, 7, 21

(e) 45
Factors of 45 are
= 1 × 45 = 45, 9 × 5 = 45
= 1, 3, 5, 9, 15, 45

(f) 25
Factors of 25 are
= 1 × 25 = 25, 5 × 5 = 25
= 1, 5, 25

(g) 14
Factors of 14 are
= 1 × 14 = 14, 2 × 7 = 14
= 1, 2, 7, 14

(h) 26
Factors of 26 are
= 1 × 26 = 26, = 2 × 13 = 26
= 1, 2, 13, 26

(i) 62
Factors of 62 are
= 1 × 62 = 62, 2 × 31 = 62
= 1, 2, 31, 62

(j) 92
Factors of 92 are
= 1 × 92 = 92, 2 × 46 = 92,
4 × 23 = 92
= 1, 2, 4, 23, 46, 92

(k) 56
Factors of 56 are
= 1 × 56 = 56, 2 × 28 = 56,
4 × 14 = 56, 7 × 8 = 56
= 1, 2, 4, 7, 8, 14, 28, 56

(l) 60
Factors of 60 are
= 1 × 60 = 60, 2 × 30 = 60,
3 × 20 = 60, 4 × 15 = 60,
5 × 12 = 60, 6 × 10 = 60
= 1, 2, 3, 4, 5, 6, 10, 12,
15, 20, 30, 60

2. Is the first number is divisible by the second number? Tick (✓) or cross (✗) :

(a) 36, 9 (✓) (b) 28, 7 (✓) (c) 21, 6 (✗) (d) 29, 8 (✗)

3. Find the numbers whose factor is 5 :
$10 = 2 \times (5)$ $13 = 1 \times 13$ $35 = (5) \times 7$ $17 = 1 \times 17$
$23 = 1 \times 23$ $28 = 2 \times 2 \times 7$ $45 = (5) \times 3 \times 3$
10, 35 and 45 are there the factors of 5.

4. Separate the prime numbers:
(a) 7, 13, 31 (b) 17, 23, 29

5. Separate the composite numbers :
(a) 20, 21 (b) 39, 8

6. 1 (one) is only number which is the factor of all numbers.
7. 2 is both prime and even number.
8. All the prime numbers less than 18 are : 1, 3, 5, 7, 11, 13, 17
9. Two prime numbers which addition is 18 are : 7 and 11
10. All prime numbers between 21 and 50 are 23, 29, 31, 37, 41, 43, 47.
11. 0 (zero) is only number which is not the factor of itself.

9. LOWEST COMMON MULTIPLE

Exercise - 16

1. Find the LCM by writing factors :
(a) 20, 15

Multiples of 20 = 20, 40, **60**, 80, 100, **120**, ...
Multiples of 15 = 15, 30, 45, **60**, 75, 90, 105, **120**, ...
Common multiples of 20 and 15 = 60, 120, ...
∴ LCM of 20 and 15 = 60

(b) 4, 8
Multiples of 4 = 4, **8**, 12, **16**, 20, **24**, ...; Multiples of 8 = **8**, **16**, **24**, 32, 40, ...
Common multiples of 4 and 8 = 8, 16, 24, ...
∴ LCM of 4 and 8 = 8

(c) 6, 12
Multiples of 6 = 6, **12**, 18, **24**, 30, ...; Multiples of 12 = **12**, **24**, 36, 48, 60, ...
Common multiples of 6 and 12 = 12, 24, ...
∴ LCM of 6 and 12 = 12

(d) 24, 28
Multiples of 24 = 24, 48, 72, 96, 120, 144, **168**, ... ;
Multiples of 28 = 28, 56, 84, 112,140, **168**, ...
Common multiples of 24 and 28 = 168, ...
∴ LCM of 24 and 28 = 168

(e) 5, 10, 15
Multiples of 5 = 5, 10, 15, 20, 25, **30**, ...; Multiples of 10= 10, 20, **30**, 40, 50, ...
Multiples of 15 = 15, **39**, 45, 60, 75
∴ Common multiples of 5, 10, 15 = 30;
∴ LCM = 30

(f) 4, 12
Multiples of 4 = 4, 8, **12**, 16, 20, **24**, ...; Multiples of 12 = **12**, **24**, 36, 48, ...
Common multiples of 4 and 12 = 12, 24, ...
∴ LCM of 4 and 12 = 12

(g) 12, 16
Multiples of 12 = 12, 24, 36, **48**, 60, 72, 84, **96**, ...;
Multiples of 16= 16, 32, **48**, 64, 80, **96**, ...
Common multiples of 12 and 16 = 48, 96, ...
∴ LCM of 12 and 16 = 48

(h) 2, 3, 4
Multiples of 2 = 2, 4, 6, 8, 10, **12**, 14, 16, 18, 20, 22, **24**, ...;
Multiples of 3 = 3, 6, 9, **12**, 15, 18, 21, **24**, ...
Multiples of 4 = 4, 8, **12**, 16, 20, **24**, ...
Common multiples of 2, 3 and 4 = 12
∴ LCM of 2, 3 and 4 = 12

(i) 3, 5, 15
Multiples of 3 = 3, 6, 9, 12, **15**, 18, 21, 24, 27, **30** ....
Multiples of 5 = 5, 10, **15**, 20, 25, **30**, ...
Multiples of 15 = **15**, **30**, 45, 60, ...
Common multiples of 3, 5 and 15 = 15, 30, ...
∴ LCM of 3, 5 and 15 = 15

(j) 9, 12
Multiples of 9 = 9, 18, 27, **36**, 45, 54, 63, **72**, ...
Multiples of 12 = 12, 24, **36**, 48, 60, **72**, ...
Common multiples of 9 and 12 = 36, 72, ...
∴ LCM of 9 and 12 = 36

(k) 16, 20

Multiples of 16 = 16, 32, 48, 64, **80**, 96, 112, 128, 144, **160**, ...

Multiples of 20 = 20, 40, 60, **80**, 120, 140, **160**, ...

Common multiples of 16 and 20 = 80, 160, ...

∴ LCM of 16 and 20 = 80

(l) 4, 8, 10

Multiples of 4 = 4, 8, 12, 16, 20, 24, 28, 32, 36, **40**, ...

Multiples of 8 = 8, 16, 24, 32, **40**, 48, 56, 64, 72, **80**, ...

Multiples of 10 = 10, 20, 30, **40**, 50, 60, 70, **80**, ...

Common multiples of 4, 8 and 10 = 40, 80, ...

∴ LCM of 4, 8 and 10 = 40

2. Find LCM by prime factorisation method :

(a) 16, 32

2	16
2	8
2	4
2	2
	1

2	32
2	16
2	8
2	4
2	2
	1

Prime factors of 16 = 2 × 2 × 2 × 2

Prime factors of 32 = 2 × 2 × 2 × 2 × 2

∴ LCM of 16 and 32 = 2 × 2 × 2 × 2 × 2 × 2 = 32

(b) 4, 9

2	4
2	2
	1

3	9
3	3
	1

Prime factors of 4 = 2 × 2

Prime factors of 9 = 3 × 3

∴ LCM of 4 and 9

= 2 × 2 × 3 × 3 = 36

(c) 9, 18

3	9
3	3
	1

2	18
3	9
3	3
	1

Prime factors of 9 = 3 × 3

Prime factors of 18 = 2 × 3 × 3

∴ LCM of 9 and 8 = 2 × 3 × 3 = 18

(d) 24, 48

2	24
2	12
2	6
3	3
	1

2	48
2	24
2	12
2	6
3	3
	1

Prime factors of 24 = 2 × 2 × 2 × 3

Prime factors of 48 = 2 × 2 × 2 × 2 × 3

∴ LCM of 24 and 48

= 2 × 2 × 2 × 2 × 3 = 48

(e) 4, 16, 32

2	4
2	2
	1

2	16
2	8
2	4
2	2
	1

2	32
2	16
2	8
2	4
2	2
	1

Prime factors of 4 = 2 × 2

Prime factors of 16 = 2 × 2 × 2 × 2

Prime factors of 32 = 2 × 2 × 2 × 2 × 2

∴ LCM of 4, 16 and 32 = 2 × 2 × 2 × 2 × 2 = 32

(f) 9, 15, 30

3	9
3	3
	1

3	15
5	5
	1

2	30
3	15
5	5
	1

Prime factors of 9 = 3 × 3

Prime factors of 15 = 3 × 5

Prime factors of 30 = 2 × 3 × 5

∴ LCM of 9, 15 and 30

= 2 × 3 × 3 × 5 = 90

(g) 15, 30, 60

5	15
3	3
	1

2	30
5	15
3	3
	1

2	60
2	30
5	15
3	3
	1

Prime factors of 15 = 5 × 3
Prime factors of 30 = 2 × 5 × 3
Prime factors of 60 = 2 × 2 × 5 × 3
∴ LCM of 15, 30 and 60 = 2 × 2 × 5 × 3 = 60

(h) 18, 24, 60

2	18
3	9
3	3
	1

2	24
2	12
2	6
3	3
	1

2	60
2	30
3	15
5	5
	1

Prime factors of 18 = 2 × 3 × 3
Prime factors of 24 = 2 × 2 × 2 × 3
Prime factors of 60 = 2 × 2 × 3 × 5
∴ LCM of 18, 24 and 60 =
= 2 × 2 × 3 × 5 = 60

3. Find the LCM of the given numbers by division method :

(a) 4, 8, 16

2	4, 8, 16
2	2, 4, 8
2	1, 2, 4
2	1, 1, 2
	1, 1, 1

∴ LCM of 4, 8 and 16
= 2 × 2 × 2 × 2 = 16

(b) 16, 24, 48

2	16, 24, 48
2	8, 12, 24
2	4, 6, 12
2	2, 3, 6
3	1, 3, 3
	1, 1, 1

∴ LCM of 16, 24 and 48
= 2 × 2 × 2 × 2 × 3 = 48

(c) 9, 18, 36

2	9, 18, 36
2	9, 9, 18
3	9, 9, 9
3	3, 3, 3
	1, 1, 1

∴ LCM of 9, 18 and 36
= 2 × 2 × 3 × 3 = 36

(d) 20, 30, 45

2	20, 30,45
2	10, 15, 45
3	5, 15, 45
3	5, 5, 15
5	5, 5, 5
	1, 1, 1

∴ LCM of 20, 30 and 45
= 2 × 2 × 3 × 3 × 5 = 180

(e) 24, 36

2	24, 36
2	12, 18
2	6, 9
2	3, 9
3	1, 3
	1, 1

∴ LCM of 24, 36
= 2 × 2 × 2 × 3 × 3 = 72

(f) 20, 36

2	20, 36
2	10, 18
3	5, 9
3	5, 3
5	5, 1
	1, 1

∴ LCM of 20, 36
= 2 × 2 × 3 × 3× 5 = 180

(g) 20, 32, 40

2	20, 32,40
2	10, 16, 20
2	5, 8, 10
2	5, 4, 5
2	5, 2, 5
5	5, 1, 5
	1, 1, 1

∴ LCM of 20, 32 and 40
= 2 × 2 × 2 × 2 × 2 × 5 = 160

(h) 18, 36, 72

2	18, 36. 72
2	9, 18, 36
2	9, 9, 18
3	9, 9, 9
3	3, 3, 3
	1, 1, 1

∴ LCM of 18, 36 and 72
= 2 × 2 × 2 × 3 × 3 = 72

(i) 30, 25

2	30, 25
3	15, 25
5	5, 25
5	1, 5
	1, 1

∴ LCM of 30 and 25
= 2 × 3 × 5 × 5 = 150

(j) 44, 88

2	44, 88
2	22, 44
2	11, 22
11	11, 11
	1, 1

∴ LCM of 44 and 88
= 2 × 2 × 2 × 11 = 88

(k) 24, 32, 40

2	24, 32. 40
2	12, 16, 20
2	6, 8, 10
2	3, 4, 5
2	3, 2, 5
3	3, 1, 5
5	1, 1, 5
	1, 1, 1

∴ LCM of 24, 32 and 40
= 2 × 2 × 2 × 2 × 2 × 3 × 5 = 480

(l) 20, 30, 40

2	20, 30, 40
2	10, 15, 20
2	5, 15, 10
3	5, 15, 5
5	5, 5, 5
	1, 1, 1

∴ LCM of 20, 30 and 40
= 2 × 2 × 2 × 3 × 5 = 120

(m) 33, 44, 66, 99

2	33, 44, 66, 99
2	33, 22, 33, 99
3	33, 11, 33, 99
3	11, 11, 11, 33
11	11, 11, 11, 11
	1, 1, 1, 1

∴ LCM of 33, 44, 66 and 99
= 2 × 2 × 3 × 3 × 11 = 396

(n) 15, 30

2	15, 30
3	15, 15
5	5, 5
	1, 1

∴ LCM of 15, 30
= 2 × 3 × 5 = 30

(o) 18, 36

2	18, 36
2	9, 18
3	9, 9
3	3, 3
	1, 1

∴ LCM of 18, 36
= 2 × 2 × 3 × 3 = 36

Exercise - 17

1. LCM of 24, 30 and 48 is

2	24, 30,48
2	12, 15, 24
2	6, 15, 12
2	3, 15, 6
3	3, 15, 3
5	1, 5, 1
	1, 1, 1

∴ LCM of 24, 30 and 48
= 2 × 2 × 2 × 2 × 3 × 5 = 240 (even)

2. The required no. is LCM of these numbers

2	12, 24, 30
2	6, 12, 15
2	3, 6, 15
3	3, 3, 15
5	1, 1, 5
	1, 1, 1

∴ LCM of 12, 24, and 30
= 2 × 2 × 2 × 3 × 5 = 120
So the required no is 120.

3. Obtained no. will be more than 7 the LCM of given numbers

2	12, 18, 21
2	6, 9, 21
3	3, 9, 21
3	1, 3, 7
7	1, 1, 7
	1, 1, 1

LCM = 2 × 2 × 3 × 3 × 7 = 252
∴ Required no. will be 252 + 7 = 259

4. Obtained no. will be less than 9 the LCM of given numbers

2	20, 24, 48
2	10, 12, 24
2	5, 6, 12
2	5, 3, 6
3	5, 3, 3
5	5, 1, 1
	1, 1, 1

∴ LCM = 2 × 2 × 2 × 2 × 3 × 5 = 240
So required no. = 240 – 9 = 231

5. Students are standing in the rows of 12, 18, 30. So the LCM of these numbers is least no. of students :

2	12, 18, 30
2	6, 9, 15
3	3, 9, 15
3	1, 3, 5
5	1, 1, 5
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 3 \times 3 \times 5 = 180$
So the least no. of students = 180

6. The least no. of books will be the LCM of 16, 18, 24 and 32

2	16, 18, 24, 32
2	8, 9, 12, 16
2	4, 9, 6, 8
2	2, 9, 3, 4
2	1, 9, 3, 2
3	1, 9, 3, 1
3	1, 3, 1, 1
	1, 1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 = 288$
So least no. of books = 288

7. The least no. of girls will be the LCM of 14, 21 and 28

2	14, 21, 28
2	7, 21, 14
3	7, 21, 7
7	7, 7, 7
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 3 \times 7 = 84$
So the least no. of girls = 84

8. The LCM of 6, 12 and 16 is the least quantity of milk :

2	6, 12, 16
2	3, 6, 8
2	3, 3, 4
2	3, 3, 2
3	3, 3, 1
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 2 \times 2 \times 3 = 48$
So the least quantity of milk = 48 l.

9. The least no. of books is the LCM of 12, 16 and 18.

2	12, 16, 18
2	6, 8, 9
2	3, 4, 9
2	3, 2, 9
3	3, 1, 9
3	1, 1, 3
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 2 \times 2 \times 3 \times 3 = 144$
So the least no, of books in almirah = 144

10. The LCM of 16 and 32 is :

2	16, 32
2	8, 16
2	4, 8
2	2, 4
2	1, 2
	1, 1

So the required LCM
$= 2 \times 2 \times 2 \times 2 \times 2 = 32$

11. The LCM of groups 12, 16 and 24 is the least no. of oranges

2	12, 16, 24
2	6, 8, 12
2	3, 4, 6
2	3, 2, 3
3	3, 1, 3
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 2 \times 2 \times 3 = 48$
So the least no. of oranges = 48

12. The LCM of numbers 15, 20 and 30 is the least no. of students

2	15, 20, 30
2	15, 10, 15
3	15, 5, 15
5	5, 5, 5
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 3 \times 5 = 60$
So the least no. of students = 60

13. The least no. of apples is the LCM of 10, 15 and 25

2	10, 15, 25
3	5, 15, 25
5	5, 5, 25
5	1, 1, 5
	1, 1, 1

$\therefore$ LCM = $2 \times 3 \times 5 \times 5 = 150$

So the least no. of apples = 150

14. The LCM of the groups of 12, 16 and 24 is the least no. of girls

2	12, 16, 24
2	6, 8, 12
2	3, 4, 6
2	3, 2, 3
3	3, 1, 3
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 2 \times 2 \times 3 = 48$

So, the least no. of girls = 48

15. The least time will be equal to the LCM of 25, 45 and 60 seconds.

2	25, 45, 60
2	25, 45, 30
3	25, 45, 15
3	25, 15, 5
5	25, 5, 5
5	5, 1, 1
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 3 \times 3 \times 5 \times 5 = 900$ secs

$1 \text{ sec} = \frac{1}{60}$ minutes

$900 \text{ sec} = \frac{900}{60}$ minutes

$= 15$ minutes

$\therefore$ So they will meet again after 15 minutes,

10. HIGHEST COMMON FACTOR

Exercise - 18

1. Find the co-prime numbers in the following pairs :

(a) 89, 110
Factors of 89 = **1**, 89
Factors of 110 = **1**, 2, 5, 10, 11, 55, 110
$\therefore$ Common factor is only 1 so this pair is co-prime.

(b) 17, 29
Factors of 17 = **1**, 17
Factors of 19 = **1**, 19
$\therefore$ Common factor is only 1 so this pair is co-prime.

(c) 17, 19
Factors of 17 = **1**, 17
Factors of 19 = **1**, 19
$\therefore$ Common factor is only 1 so this pair is co-prime.

(d) 24, 20
Factors of 24 = **1**, **2**, 3, **4**, 6, 8, 12, 24
Factors of 20 = **1**, **2**, **4**, 5, 10, 20
It has 2, 4 common factors other than 1 so it is not co-prime.

(e) 22, 26
Factors of 22 = **1**, **2**, 11
Factors of 26 = **1**, **2**, 13, 26
It has 1, 2 common factors other than 1. So it is not co-prime.

(f) 45, 56
Factors of 45 = **1**, 3, 5, 9, 15, 45
Factors of 56 = **1**, 2, 4, 7, 8, 14, 28, 56
$\therefore$ Here common factor is only 1
So this is co-prime.

(g) 18, 16
Factors of 18 = **1**, **2**, 3, 6, 9, 18
Factors of 26 = **1**, **2**, 4, 8, 16
It has 1, 2 common factors other than 1
So it is not co-prime.

(h) 28, 24
Factors of 28 = **1**, **2**, **4**, 7, 14, 28
Factors of 24 = **1**, **2**, 3, **4**, 6, 8, 12, 24
$\therefore$ It has 2, 4 common factor other than1. 1, So it is not co-prime.

2. Find the common factors of the given numbers :

(a) 20, 24
Factors of 20 = **1**, **2**, **4**, 5, 10, 20

(b) 12, 18
Factors of 12 = **1**, **2**, **3**, 4, **6**, 12

Factors of 24 = **1**, **2**, 3, **4**, 6, 8, 12, 24
∴ Common factors = 1, 2, 4

(c) 12, 36, 48
Factors of 12 = **1**, **2**, **3**, **4**, **6**, **12**
Factors of 36 = **1**, **2**, **3**, **4**, **6**, 9, **12**, 18, 36
Factors of 48 = **1**, **2**, **3**, **4**, **6**, 8, **12**, 24, 48
∴ Common factors = 1, 2, 3, 4, 6, 12

(e) 24, 28
Factors of 24 = **1**, **2**, 3, **4**, 6, 8, 12, 24
Factors of 28 = **1**, **2**, **4**, 7, 14, 28
∴ Common factors = 1, 2, 4

(g) 24, 40
Factors of 24 = **1**, **2**, 3, **4**, 6, 8, 12, 24
Factors of 40 = **1**, **2**, **4**, 5, 8, 10
∴ Common factors = 1, 2, 4

Factors of 18 = **1**, **2**, **3**, **6**, 9, 18
∴ Common factors = 1, 2, 3, 6

(d) 17, 51
Factors of 17 = **1**, 17
Factors of 51 = **1**, 3, **17**
∴ Common factors = 1, 17

(f) 40, 36
Factors of 40 = **1**, **2**, **4**, 5, 8, 10
Factors of 36 = **1**, **2**, 3, **4,** 6, 9, 12, 18, 36
∴ Common factors = 1, 2, 4

(h) 88, 66, 99
Factors of 88 = **1**, 2, 4, 8, **11**, 22, 44, 88
Factors of 66 = **1**, 2, 3, **11,** 22, 33, 66
Factors of 99 = **1**, 3, **11**, 33, 99
∴ Common factors = 1, 11

3. Find the HCF by writing factors of the given numbers :

(a) 24, 78
Factors of 24 = **1**, **2**, **3**, 4, **6**, 8, 12, 24
Factors of 78 = **1**, **2**, **3**, **6**, 13, 39, 78
∴ Common factors = 1, 2, 3, 6
Here 6 is largest common factor so HCF = 6

(c) 35, 85
Factors of 35 = **1**, **5**, 7, 35
Factors of 85 = **1**, **5**, 17, 85
∴ Common factors = 1, 5
Here 5 is largest common factor so HCF = 5

(e) 20, 25
Factors of 20 = **1**, 2, 4, **5**, 10, 20
Factors of 25 = **1**, **5**, 25
∴ Common factors = 1, 5
Here 5 is largest common factor so HCF = 5

(g) 110, 210
Factors of 110 = **1**, **2**, **5**, **10**, 11, 55, 110
Factors of 210 = **1**, **2**, 3, **5**, 7, **10**, 21, 30, 42, 70, 105, 210
∴ Common factors = 1, 2, 5, 10
Here 10 is largest common factor so HCF = 10

(b) 36, 92
Factors of 36 = **1**, **2**, 3, **4**, 6, 9, 12, 18, 36
Factors of 92 = **1**, **2**, **4**, 23, 46, 92
∴ Common factors = 1, 2, 4
Here 4 is largest common factor so HCF = 4

(d) 6, 10
Factors of 6 = **1**, **2**, 3, 6
Factors of 10 **= 1**, **2**, 5, 10
∴ Common factors = 1, 2
Here 2 is largest common factor so HCF = 2

(f) 25, 125
Factors of 25 **= 1**, **5**, **25**
Factors of 125 **= 1**, **5**, **25**, 125
∴ Common factors = 1, 5, 25
Here 25 is largest common factor so HCF = 25

(h) 32, 36, 40
Factors of 32 **= 1**, **2**, **4**, 8, 16, 32
Factors of 36 **= 1**, **2**, 3, **4**, 6, 9,12, 18, 36
Factors of 40 = **1**, **2**, **4**, 5, 8, 10, 20, 40
∴ Common factors = 1,2, 4
Here 4 is largest common factor so HCF = 4

4. Find the HCF by prime factorisation method of the following numbers :

(a) 65, 70

5	65
13	13
	1

2	70
5	35
7	7
	1

Factors of 65 = **5** × 13
Factors of 70 = 2 × **5** × 7
∴ Common factors = 5
So HCF = 5

(b) 55, 33, 77

5	55
11	11
	1

3	33
11	11
	1

7	77
11	11
	1

Factors of 55 = 5 × **11**, Factors of 33 = 3 × **11**
Factors of 77 = 7 × **11**
∴ Common factors = 11
So HCF = 11

(c) 40, 156

2	40
2	20
2	10
5	5
	1

2	156
2	78
3	39
13	13
	1

Factors of 40 = **2** × **2** × 2 × 5
Factors of 156 = **2**×**2** × 3 × 13
∴ Common factors = 2 × 2 = 4
So HCF = 4

(d) 48, 84

2	48
2	24
2	12
2	6
3	3
	1

2	84
2	42
3	21
7	7
	1

Factors of 48 = **2**×**2**×2×2×**3**
Factors of 84 = **2** × **2** × **3** × 7
∴ Common factors = 2 × 2 × 3
So HCF = 12

(e) 240, 920

2	240
2	120
2	60
2	30
3	15
5	5
	1

2	920
2	460
2	230
5	115
23	23
	1

Factors of 240 = **2** × **2** × 2 × 2 × 3 × **5**
Factors of 920 = **2** × **2** × 2 × 5 × 23
∴ Common factors = 2 × 2 × 2 × 5 = 40 So HCF = 40

(f) 18, 72

2	18
3	9
3	3
	1

2	72
2	36
2	18
3	9
3	3
	1

Factors of 18 = **2** × **3** × **3**
Factors of 72 = **2** × 2 × 2 × **3** × **3**
∴ Common Factors = 2 × 3 × 3 = 18, So HCF = 18

(g) 40, 82

2	40
2	20
2	10
5	5
	1

2	82
41	41
	1

Factors of 40 = **2** × 2 × 2 × 5
Factors of 82 = **2** × 41
∴ Common Factors = 2
So HCF = 2

(h) 30, 48, 54

2	30
3	15
5	5
	1

2	48
2	24
2	12
2	6
3	3
	1

2	54
3	27
3	9
3	3
	1

(i) 112, 210

2	112
2	56
2	28
2	14
7	7
	1

2	210
3	105
5	35
7	7
	1

Factors of 30 = **2** × **3** × 5
Factors of 48 = **2** × 2 × 2 × 2 × **3**
Factors of 54 = **2** × **3** × 3 × 3
∴ Common factors = 2 × 3 = 6
So HCF = 6

Factors of 112 = **2** × 2 × 2 × 2 × **7**
Factors of 210 = **2** × 3 × 5 × **7**
∴ Common factors = 2 × 7 = 14
So HCF = 14

(j) 95, 135

5	95
19	19
	1

3	135
3	45
3	15
5	5
	1

Factors of 95 = **5** × 19
Factors of 135 = 3 × 3 × 3 × **5**
∴ Common factors = 5
So HCF = 5

(k) 34, 51

2	34
17	17
	1

3	51
17	17
	1

Factors of 34 = 2 × **17**
Factors of 51 = 3 × **17**
∴ Common factors = 17
So HCF = 17

(l) 17, 51, 68

17	17
	1

3	51
17	17
	1

2	68
2	34
17	17
	1

Factors of 17 = 17
Factors of 51 = 3 × 17
Factors of 68 = 2 × 2 × 17
∴ Common factors = 17 So HCF = 17

5. Find the HCF of the given numbers by division method :

(a) 150, 245

We make the smallest no. 150 as divisor and largest no. 245 as dividend.

```
150 ) 245 ( 1
      150
      ---
       95 ) 150 ( 1
            95
            --
            55 ) 95 ( 1
                 55
                 --
                 40 ) 55 ( 1
                      40
                      --
                      15 ) 40 ( 2
                           30
                           --
                           10 ) 15 ( 1
                                10
                                --
                                 5 ) 10 ( 2
                                     10
                                     --
                                      ×
```

Thus the last divisor is 5.
So HCF = 5

(b) 36, 48

We make the smallest no. 36 as divisor and largest no. 48 as dividend.

```
36 ) 48 ( 1
     36
     --
     12 ) 36 ( 3
          36
          --
           ×
```

Thus the last divisor is 12.
So HCF = 12

(c) 25, 125

We make the smallest no. 25 as divisor and largest no. 125 as dividend.

```
25 ) 125 ( 5
     125
     ---
      ×
```

∴ Last divisor is 25.
So HCF = 25

(d) 60, 72, 84

We make the smallest

(e) 80, 162

We make the smallest

(f) 45, 130

We make the smallest

no. 60 as divisor and largest no. 84 as dividend.

$64\overline{)84}(1$, 60, $24\overline{)60}(2$, 48, $12\overline{)24}(2$, 24, $\times$

Now 12 is HCF of 60 & 84.
Now we find the HCF of 12 and 72.

$12\overline{)72}(6$, 72, $\times$ So HCF = 12

no. 80 as divisor and largest no. 162 as dividend.

$80\overline{)162}(2$, 160, $2\overline{)80}(40$, 80, $\times$

$\therefore$ 2 is the HCF of 80 and 162.

no. 45 as divisor and largest no. 130 as dividend.

$45\overline{)130}(2$, 90, $40\overline{)45}(1$, 40, $5\overline{)40}(8$, 40, $\times$

$\therefore$ 5 is the HCF of 45 and 130

(g) 78, 36, 42

We make the smallest no. 36 as divisor and largest no. 78 as dividend.

$36\overline{)78}(2$, 72, $6\overline{)36}(6$, 36, $\times$ $\therefore$ 6 is HCF of 36 and 78.

Now we find the HCF of 6 and 42.

$6\overline{)42}(7$, 42, $\times$

$\therefore$ 6 is the HCF of 78, 36 and 42.

(h) 224, 144, 348

We make the smallest no. 144 as divisor and largest no. 348 as dividend.

$144\overline{)348}(2$, 288, $60\overline{)144}(2$, 120, $24\overline{)60}(2$, 48, $12\overline{)24}(2$, 24, $\times$

$\therefore$ 12 is HCF of 144 and 348.

Now we find the HCF of 12 and 224.

$12\overline{)224}(18$, 12, 104, 96, $8\overline{)12}(1$, 8, $4\overline{)8}(2$, 8, $\times$

So HCF of 224, 144 and 348 = 4

Exercise - 19

1. The required no. will be the HCf of 171 and 209.

So,

3	171
3	57
19	19
	1

11	209
19	19
	1

Factors of 171 = 3 × 3 × **19**

Factors of 209 = 11 × **19**

$\therefore$ HCF of 171 and 209 = 19

So the greatest no. is 19.

2. The greatest no. of the students will be equal to the HCf of the number 12, 24 and 36.

So,

2	12
2	6
3	3
	1

2	24
2	12
2	6
3	3
	1

2	36
2	18
3	9
3	3
	1

Factors of 12 = **2** × **2** × **3**
Factors of 24 = **2** × **2** × 2 × **3**
Factors of 36 = **2** × **2** × **3** × 3
∴ HCF of 12, 24 and 36 = 2 × 2 × 3
So the greatest no. is 12.

3. The required length of rope will be the HCF of 120 m and 180 m.

So,

2	120
2	60
2	30
3	15
5	5
	1

2	180
2	90
3	45
3	15
5	5
	1

Factors of 120 = **2** × **2** × 2 × **3** × **5**
Factors of 180 = **2** × **2** × **3** × 3 × **5**
∴ HCF of 120 and 180 = 2 × 2 × 3 × 5 = 60
So the largest length of rope is 60 m.

4. Length of surface = 90 m and Breadth of surface = 60 m
The greatest side of square tile will be the HCF of 90 m and 60 m.

So,

2	90
3	45
3	15
5	5
	1

2	60
2	30
3	15
5	5
	1

Factors of 90 = **2** × **3** × 3 × **5**
Factors of 60 = **2** × 2 × **3** × **5**
∴ HCF of 90 and 60 = 2 × 3 × 5 = 30
So the greatest side of square tile is 30 m.

5. No. of Guavas = 70, No. of Mangoes = 85
To find the largest no. of guavas and mangoes, we find HCF of 70 and 85.

So,

2	70
5	35
7	7
	1

5	85
17	17
	1

Factors of 70 = 2 × **5** × 7
Factors of 85 = **5** × 17
∴ HCF of 70 and 85 = 5

6. No. of red pens = 25, No. of black pens = 40, No. of blue pens = 60
To find the lagest no. of pens we find the HCF of 25, 40 and 60.

So,

5	25
5	5
	1

2	40
2	20
2	10
5	5
	1

2	60
2	30
3	15
5	5
	1

Factors of 25 = **5** × 5
Factors of 40 = 2 × 2 × 2 × **5**
Factors of 60 = 2 × 2 × 3 × **5**
∴ HCF of 25, 40 and 60 = 5
So the largest no. of pens in a box = 5

7. The quantity of milk in three buckets are 20 *l*, 25 *l*, and 30 *l*.
To find the greatest measurement, we find HCF of 20, 25 and 30.

So,

2	20
2	10
5	5
	1

5	25
5	5
	1

2	30
3	15
5	5
	1

Factors of 20 = 2 × 2 × **5**
Factors of 25 = 5 × **5**
Factors of 30 = 2 × 3 × **5**
∴ HCF of 20, 25 and 30 = 5

So the greatest measurement to measure the milk is 5*l*.

8. We find required HCF of 24, 42 and 66.

So,

2	24
2	12
2	6
3	3
	1

2	42
3	21
7	7
	1

2	66
3	33
11	11
	1

Factors of 24 = **2** × 2 × 2 × **3**
Factors of 42 = **2** × **3** × 7
Factors of 66 = **2** × **3** × 11
∴ HCF of 24, 42 and 66 = 2 × 3 = 6
Hence HCf is even.

9. To find required largest no., we find HCF of 40 and 25.

So,

2	40
2	20
2	10
5	5
	1

5	25
5	5
	1

Factors of 40 = 2 × 2 × 2 × **5**
Factors of 25 = **5** × 5
∴ HCF of 40 and 25 = 5
So the largest no. = 5

10. To find largest no., we find HCf of 40 and 65.

So,

2	40
2	20
2	10
5	5
	1

5	65
13	13
	1

Factors of 40 = 2 × 2 × 2 × **5**
Factors of 65 = **5** × 13
∴ HCF of 40 and 65 = 5
So the largest no. = 5

11. No. of boys = 84, No. of girls = 48
the greatest no. of each group will be the HCF of 84 and 48.

So,

2	84
2	42
3	21
7	7
	1

2	48
2	24
2	12
2	6
3	3
	1

Factors of 84 = **2** × **2** × **3** × 7
Factors of 48 = **2** × **2** × 2 × 2 × **3**
∴ HCF of 84 and 48 = 2 × 2 × 3 = 12
So the greatest no. of each group = 12

12. The largest no. will be the HCf of 391 and 527.

So,

17	391
23	23
	1

17	527
31	31
	1

Factors of 391 = **17** × 23
Factors of 527 = **17** × 31
∴ HCF of 391 and 527 = 17
So the largest no. = 17

13. The two pieces of wire are 180 m and 220 m of length. To find the maximum no. of pieces of length. We find HCF of 180 and 220.

So,

2	180
2	90
3	45
3	15
5	5
	1

2	220
2	110
5	55
11	11
	1

Factors of 180 = **2** × **2** × 3 × 3 × **5**
Factors of 220 = **2** × **2** × **5** × 11
∴ HCF of 180 and 220 = 2 × 2 × 5 = 20
So the maximum no. of length of pieces = 20 m.
Also, total length of wire = 180 + 220 = 400 m
Length of each piece = 20 m

Total No. of pieces = 400 ÷ 20 = 20

14. Because two drums have 156 l and 252 l oil. To find greatesr measurement of the box we find HCF of 156 and 252.

So,

2	156
2	78
3	39
13	13
	1

2	252
2	126
3	63
3	21
7	7
	1

Factors of 156 = **2** × **2** × **3** × 13
Factors of 252 = **2** × **2** × **3** × 3 × 7
∴ HCF of 156 and 252 = 2 × 2 × 3 = 12

Hence the greatest measurement of box is 12 l. Which can measures the oil in each drum.

11. SIMPLE FRACTIONS

Exercise - 20

1. Write proper, improper or mixed fractions for the following fractions :
Proper fraction—$\frac{1}{5}, \frac{2}{7}, \frac{5}{8}, \frac{3}{7}, \frac{4}{9}, \frac{3}{11}$ Improper fraction—$\frac{7}{6}, \frac{11}{3}, \frac{7}{2}, \frac{21}{17}, \frac{19}{10}, \frac{7}{3}$;
mixed fraction—$3\frac{2}{5}, 1\frac{2}{5}, 3\frac{5}{8}, 7\frac{2}{3}$

2. Choose the unit fractions from the given fractions :
$\frac{1}{6}, \frac{1}{4}, \frac{1}{7}, \frac{1}{8}$ are unit fractions because Numerator is 1.

3. Write like fractions or unlike fractions for the following fractions :
Like fraction group—a, d, e, f; Unlike fraction group—b, c

4. Change in the form of fractions :

(a) $11 \div 4 = \frac{11}{4}$ (b) $4 \div 7 = \frac{4}{7}$ (c) $11 \div 7 = \frac{11}{7}$ (d) $6 \div 13 = \frac{6}{13}$

(e) $17 \div 3 = \frac{17}{3}$ (f) $9 \div 5 = \frac{9}{5}$ (g) $7 \div 5 = \frac{7}{5}$ (h) $1 \div 7 = \frac{1}{7}$

5. Write following in division forms :

(a) $\frac{5}{7} = 5 \div 7$ (b) $\frac{9}{8} = 9 \div 8$ (c) $\frac{1}{5} = 1 \div 5$ (d) $\frac{13}{9} = 13 \div 9$

(e) $\frac{17}{15} = 17 \div 15$ (f) $\frac{6}{8} = 6 \div 8$ (g) $\frac{12}{7} = 12 \div 7$ (h) $\frac{4}{5} = 4 \div 5$

6. Change improper fractions into mixed fractions :

(a) $\frac{7}{2} = 3\frac{1}{2}$ (b) $\frac{16}{6} = \frac{8}{3} = 2\frac{2}{3}$ (c) $\frac{18}{8} = \frac{9}{4} = 2\frac{1}{4}$ (d) $\frac{19}{7} = 2\frac{5}{7}$

(e) $\frac{15}{4} = 3\frac{3}{4}$ (f) $\frac{31}{5} = 6\frac{1}{5}$ (g) $\frac{13}{4} = 3\frac{1}{4}$ (h) $\frac{29}{8} = 3\frac{5}{8}$

7. Change the following mixed fractions into improper fractions :

(a) $1\frac{4}{7} = \frac{7\times1+4}{7} = \frac{7+4}{7} = \frac{11}{7}$ (b) $3\frac{6}{7} = \frac{7\times3+6}{7} = \frac{21+6}{7} = \frac{27}{7}$

(c) $3\frac{5}{8} = \frac{8\times3+5}{8} = \frac{24+5}{8} = \frac{29}{8}$ (d) $2\frac{6}{7} = \frac{7\times2+6}{7} = \frac{14+6}{7} = \frac{20}{7}$

(e) $7\frac{1}{5} = \frac{5\times7+1}{5} = \frac{35+1}{5} = \frac{36}{5}$ (f) $9\frac{2}{7} = \frac{9\times7+2}{7} = \frac{63+2}{7} = \frac{65}{7}$

(g) $5\frac{3}{8} = \frac{8\times5+3}{8} = \frac{40+3}{8} = \frac{43}{8}$ (h) $1\frac{3}{9} = \frac{9\times1+3}{9} = \frac{9+3}{9} = \frac{12}{9}$

(i) $3\frac{4}{7} = \frac{7\times3+4}{7} = \frac{21+4}{7} = \frac{25}{7}$ (j) $1\frac{2}{8} = \frac{8\times1+2}{8} = \frac{8+2}{8} = \frac{10}{8}$

(k) $4\frac{4}{5} = \frac{5\times4+4}{5} = \frac{20+4}{5} = \frac{24}{5}$ (l) $2\frac{3}{8} = \frac{8\times2+3}{8} = \frac{16+3}{8} = \frac{19}{8}$

8. Write reciprocal of following fractions :

(a) $\frac{4}{8}=\frac{8}{4}$ (b) $\frac{10}{4}=\frac{4}{10}$ (c) $\frac{7}{9}=\frac{9}{7}$ (d) $\frac{7}{8}=\frac{8}{7}$ (e) $\frac{11}{7}=\frac{7}{11}$ (f) $\frac{7}{9}=\frac{9}{7}$

(g) $\frac{12}{15}=\frac{15}{12}$ (h) $\frac{36}{31}=\frac{31}{36}$

9. Write reciprocal of the following proper fractions and then change into mixed fractions :

(a) $\frac{3}{8}$

Reciprocal of $\frac{3}{8}=\frac{8}{3}$

Mixed fraction of $\frac{8}{3}=2\frac{2}{3}$

(b) $\frac{8}{15}$

Reciprocal of $\frac{8}{15}=\frac{15}{8}$

Mixed fraction of $\frac{15}{8}=1\frac{7}{8}$

(c) $\frac{13}{17}$

Reciprocal of $\frac{13}{17}=\frac{17}{13}$

Mixed fraction of $\frac{17}{13}=1\frac{4}{13}$

(d) $\frac{15}{21}$

Reciprocal of $\frac{15}{21}=\frac{21}{15}$

Mixed fraction of $\frac{21}{15}=1\frac{6}{15}$

(e) $\frac{9}{22}$

Reciprocal of $\frac{9}{22}=\frac{22}{9}$

Mixed fraction of $\frac{22}{9}=2\frac{4}{9}$

(f) $\frac{6}{19}$

Reciprocal of $\frac{6}{19}=\frac{19}{6}$

Mixed fraction of $\frac{19}{6}=3\frac{1}{6}$

(g) $\frac{3}{17}$

Reciprocal of $\frac{3}{17}=\frac{17}{3}$

Mixed fraction of $\frac{17}{3}=5\frac{2}{3}$

(h) $\frac{8}{21}$

Reciprocal of $\frac{8}{21}=\frac{21}{8}$

Mixed fraction of $\frac{21}{8}=2\frac{5}{8}$

10. Change the following mixed fractions into improper fractions and also write its reciprocal :

(a) $3\frac{1}{3}=\frac{3\times3+1}{3}=\frac{9+1}{3}=\frac{10}{3}$

Reciprocal of $\frac{10}{3}=\frac{3}{10}$

(b) $2\frac{7}{9}=\frac{9\times2+7}{9}=\frac{18+7}{9}=\frac{25}{9}$

Reciprocal of $\frac{25}{9}=\frac{9}{25}$

(c) $3\frac{4}{5}=\frac{3\times5+4}{5}=\frac{15+4}{5}=\frac{19}{5}$

Reciprocal of $\frac{19}{5}=\frac{5}{19}$

(d) $9\frac{8}{11}=\frac{9\times11+8}{11}=\frac{99+8}{11}=\frac{107}{11}$

Reciprocal of $\frac{107}{11}=\frac{11}{107}$

(e) $4\frac{9}{10}=\frac{4\times10+9}{10}=\frac{40+9}{10}=\frac{49}{10}$

Reciprocal of $\frac{49}{10}=\frac{10}{49}$

(f) $3\frac{3}{11}=\frac{11\times3+3}{11}=\frac{33+3}{11}=\frac{36}{11}$

Reciprocal of $\frac{36}{11}=\frac{11}{36}$

(g) $3\frac{1}{7}=\frac{3\times7+1}{7}=\frac{21+1}{7}=\frac{22}{7}$

Reciprocal of $\frac{22}{7}=\frac{7}{22}$

(h) $7\frac{3}{13}=\frac{13\times7+3}{13}=\frac{91+3}{13}=\frac{94}{13}$

Reciprocal of $\frac{94}{13}=\frac{13}{94}$

Exercise - 21

1. Write the fraction and equivalent fraction of the fiven shaded parts :

(a) $\frac{3}{6}$ or $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{3}{4}$ (d) $\frac{1}{2}$

2. Write four equivalent fractions of the given fractions :

(a) $\frac{1}{3}$

Four equivalent fractions of $\frac{1}{3}$ are

$\frac{1}{3}\times\frac{2}{2}=\frac{2}{6}, \frac{1}{3}\times\frac{3}{3}=\frac{3}{9}, \frac{1}{3}\times\frac{4}{4}=\frac{4}{12}, \frac{1}{3}\times\frac{5}{5}=\frac{5}{15}$

$\therefore \frac{2}{6}, \frac{3}{9}, \frac{4}{12}, \frac{5}{15}$

(b) $\frac{2}{7}$

Four equivalent fractions of $\frac{2}{7}$ are

$\frac{2}{7}\times\frac{2}{2}=\frac{4}{14}, \frac{2}{7}\times\frac{3}{3}=\frac{6}{21}, \frac{2}{7}\times\frac{4}{4}=\frac{8}{28}, \frac{2}{7}\times\frac{5}{5}=\frac{10}{35}$

$\therefore \frac{4}{14}, \frac{6}{21}, \frac{8}{28}, \frac{10}{35}$

(c) $\frac{1}{5}$

Four equivalent fractions of $\frac{1}{5}$ are

$\frac{1}{5}\times\frac{2}{2}=\frac{2}{10}, \frac{1}{5}\times\frac{3}{3}=\frac{3}{15}, \frac{1}{5}\times\frac{4}{4}=\frac{4}{20}, \frac{1}{5}\times\frac{5}{5}=\frac{5}{25}$

$\therefore \frac{2}{10}, \frac{3}{15}, \frac{4}{20}, \frac{5}{25}$

(d) $\frac{3}{4}$

Four equivalent fractions of $\frac{3}{4}$ are

$\frac{3}{4}\times\frac{2}{2}=\frac{6}{8}, \frac{3}{4}\times\frac{3}{3}=\frac{9}{12}, \frac{3}{4}\times\frac{4}{4}=\frac{12}{16}, \frac{3}{4}\times\frac{5}{5}=\frac{15}{20}$

$\therefore \frac{6}{8}, \frac{9}{12}, \frac{12}{16}, \frac{15}{20}$

(e) $\frac{4}{5}$

Four equivalent fractions of $\frac{4}{5}$ are

$\frac{4}{5}\times\frac{2}{2}=\frac{8}{10}, \frac{4}{5}\times\frac{3}{3}=\frac{12}{15}, \frac{4}{5}\times\frac{4}{4}=\frac{16}{20}, \frac{4}{5}\times\frac{5}{5}=\frac{20}{25}$

$\therefore \frac{8}{10}, \frac{12}{15}, \frac{16}{20}, \frac{20}{25}$

3. Find the equivalent fractions of $\frac{1}{4}$ from the given fraction?

$\frac{2\div2}{8\div2}=\frac{1}{4}, \frac{3\div3}{12\div3}=\frac{1}{4}, \frac{8\div8}{32\div8}=\frac{1}{4}, \frac{7\div7}{28\div7}=\frac{1}{4}, \frac{5\div5}{20\div5}\frac{1}{4}, \frac{10\div10}{40\div10}=\frac{1}{4}$

Hence $\frac{2}{8}, \frac{3}{12}, \frac{8}{32}, \frac{7}{28}, \frac{5}{20}$ and $\frac{10}{40}$ are equivalent fractions of $\frac{1}{4}$.

4. Fill in the blanks :

(a) 3 (b) 35 (c) 12 (d) 9 (e) 6 (f) 5 (g) 20 (h) 6

5. Write each of the given fraction which numerator is 15 :

(a) $\frac{5}{8}$

Because numerator is 15

So, $\frac{5\times3}{8\times3}=\frac{15}{24}$

(b) $\frac{3}{5}$

Because numerator is 15

So, $\frac{3\times5}{5\times5}=\frac{15}{25}$

(c) $\frac{30}{40}$

Because numerator is 15

So, $\frac{30\div2}{40\div2}=\frac{15}{20}$

(d) $\frac{1}{3}$

Because numerator is 15

So, $\frac{1\times15}{3\times15}=\frac{15}{45}$

6. Change following equivalent fractions as denominator 16 :

(a) $\frac{7}{8}$

Because denominator is 16

So, $\frac{7\times2}{8\times2}=\frac{14}{16}$

(b) $\frac{5}{8}$

Because denominator is 16

So, $\frac{5\times2}{8\times2}=\frac{10}{16}$

(c) $\frac{3}{2}$

Because denominator is 16

So, $\frac{3\times8}{2\times8}=\frac{24}{16}$

(d) $\frac{7}{4}$

Because denominator is 16

So, $\frac{7\times4}{4\times4}=\frac{28}{16}$

7. Which of the following fractions are equivalent fractions :

(a) $\frac{9}{15}$ and $\frac{11}{20}=\frac{9}{15}=\frac{11}{20}$

$9\times20=11\times15$

$180\neq165$

Both product are not equal, so fractions are not equivalent fraction.

(b) $\frac{4}{9}$ and $\frac{16}{36}=\frac{4}{9}=\frac{16}{36}$

$4\times36=16\times9$

$144=144$

Both product are equal, so fractions are equivalent fraction.

(c) $\frac{8}{7}$ and $\frac{40}{35} = \frac{8}{7} = \frac{40}{35}$

$8 \times 35 = 40 \times 7$

$280 = 280$

Both product are equal, so fractions are equivalent fraction.

(d) $\frac{11}{55}$ and $\frac{13}{49} = \frac{11}{55} = \frac{13}{49}$

$11 \times 49 = 55 \times 13$

$539 \neq 715$

Both product are not equal, so fractions are not equivalent fraction.

8. Reduce each of following fractions to simplest form :

(a) $\frac{24}{32}$

The HCF of 24 and 32 = 8

So, $\frac{24 \div 8}{32 \div 8} = \frac{3}{4}$

(b) $\frac{21}{36}$

The HCF of 21 and 36 = 3

So, $\frac{21 \div 3}{36 \div 3} = \frac{7}{12}$

(c) $\frac{16}{34}$

The HCF of 16 and 34 = 2

So, $\frac{16 \div 2}{34 \div 2} = \frac{8}{17}$

(d) $\frac{12}{30}$

The HCF of 12 and 30 = 6

So, $\frac{12 \div 6}{30 \div 6} = \frac{2}{5}$

(e) $\frac{40}{48}$

The HCF of 40 and 48 = 8

So, $\frac{40 \div 8}{48 \div 8} = \frac{5}{6}$

(f) $\frac{78}{156}$

The HCF of 78 and 156 = 78

So, $\frac{78 \div 78}{156 \div 78} = \frac{1}{2}$

(g) $\frac{46}{92}$

The HCF of 46 and 92 = 46

So, $\frac{46 \div 46}{92 \div 46} = \frac{1}{2}$

(h) $\frac{18}{24}$

The HCF of 18 and 24 = 6

So, $\frac{18 \div 6}{24 \div 6} = \frac{3}{4}$

Exercise - 22

1. Choose the greater fraction from the given fractions :

(a) $\frac{4}{7}, \frac{6}{7}$ = Because the denominator of both fractions are equal. So the fraction with greater numerator is greater. $\because$ $4 < 6$ So, $\frac{4}{7} < \frac{6}{7}$.

(b) $\frac{5}{6}, \frac{5}{8}$ = Because the numerator of both fractions are equal. So the smaller denominator fraction is greater. $\because$ $6 < 8$ So, $\frac{5}{6} > \frac{5}{8}$.

(c) $\frac{1}{7}, \frac{1}{5}$ = Because the numerator of both fractions are equal. So the smaller denominator fraction is greater. $\because$ $7 > 5$ So, $\frac{1}{7} < \frac{1}{5}$.

(d) $\frac{8}{5}, \frac{7}{5}$ = Because the denominator of both fractions are equal. So, the fraction with greater numerator is greater. $\because$ $8 > 7$ So, $\frac{8}{5} > \frac{7}{5}$.

(e) $\frac{14}{29}, \frac{23}{29}$ = Because the denominator of both fractions are equal. So, the fraction with greater numerator is greater. $\because$ $14 < 23$ So, $\frac{14}{29} < \frac{23}{29}$.

(f) $\frac{31}{34}, \frac{31}{50}$ = Because the numerator of both fractions are equal. So the smaller denominator fraction is greater. $\because$ $34 < 50$ So, $\frac{31}{34} > \frac{31}{50}$.

(g) $3\frac{1}{4}, \frac{15}{4} = \frac{13}{4}$ and $\frac{15}{4}$ = Because the denominator of both fractions are equal. So the fraction with greater numerator is greater. $\because$ $13 < 15$ So, $\frac{13}{4} < \frac{15}{4}$.

(h) $\frac{7}{5}, \frac{9}{10}$ = LCM of denominator 5 and 10 of gives fractions is 10. Now, we make denominators as 10 of both fractions.

$\frac{7\times2}{5\times2}=\frac{14}{10}, \frac{9\times1}{10\times1}=\frac{9}{10}$

$\frac{14}{10}$ and $\frac{9}{10}$. Here. numerator 14 is greater than 9. So $\frac{14}{10}$ is greater fraction. $\frac{14}{10} > \frac{9}{10}$ or $\frac{7}{5} > \frac{9}{10}$. Hence, $\frac{7}{5}$ is greater.

2. Choose the smaller fraction from the given fractions :

(a) $\frac{9}{8}, \frac{9}{4}$

Here numerator of both fractions are equal. So fraction having greater denominator is smaller fraction. $\because$ $8 > 4$ $\therefore$ $\frac{9}{8} < \frac{9}{4}$ So $\frac{9}{8}$ is smaller fraction.

(b) $\frac{2}{7}, \frac{3}{7}$

Here denominator of both fractions are equal. So fraction having smaller numerator is smaller fraction. $\because$ $2 < 3$ $\therefore$ $\frac{2}{7} < \frac{3}{7}$ So $\frac{2}{7}$ is smaller fraction.

(c) $\frac{19}{38}, \frac{22}{38}$

Here denominator of both fractions are equal. So fraction having smaller numerator is smaller fraction. $\because$ $19 < 22$ $\therefore$ $\frac{19}{38} < \frac{22}{38}$ So $\frac{19}{38}$ is smaller fraction.

(d) $\frac{69}{70}, \frac{69}{65}$

Here numerator of bot fractions are equal. So fraction having greater denominator is smaller fraction. $\because$ $70 > 65$ $\therefore$ $\frac{69}{70} < \frac{69}{65}$ So $\frac{69}{70}$ is smaller fraction.

(e) $\frac{1}{15}, \frac{1}{17}$

LCM of denominator 15 and 17 of given fractions is 255. Now, we make both denominator as 255.

So $\frac{1}{15}\times\frac{17}{17}=\frac{17}{255}$ and $\frac{1}{17}\times\frac{15}{15}=\frac{15}{255}=\frac{17}{255}$ and $\frac{15}{255}$

$\because$ $17 > 15$ $\therefore$ $\frac{17}{255} > \frac{15}{255}$ So $\frac{15}{255}$ or $\frac{1}{17}$ is smaller fraction.

(f) $\frac{7}{11}, \frac{3}{11}$

Here denominator of both fractions are equal. So fraction having smaller numerator is smaller fraction. $\because$ $7 > 3$ $\therefore$ $\frac{7}{11} > \frac{3}{11}$ So $\frac{3}{11}$ is smaller fraction.

(g) $\frac{7}{9}, \frac{5}{6}$

LCM of denominator 9 and 6 is 18. Now we make denominator as 18 of both fracions. So, $\frac{7\times2}{9\times2}=\frac{14}{18}$ and $\frac{5\times3}{6\times3}=\frac{15}{18}$

$\frac{14}{18} < \frac{15}{18}$ or $\frac{7}{9} < \frac{5}{6}$ So $\frac{7}{9}$ is smaller fraction

(h) $\frac{11}{12}, \frac{9}{8}$

LCM of denominator 12 and 8 is 24. Now we make denominator as 24 of both fractions. So, $\frac{11\times2}{12\times2}=\frac{22}{24}$ and $\frac{9\times3}{8\times3}=\frac{27}{24}$

$\frac{22}{24} < \frac{27}{24}$ or $\frac{11}{12} < \frac{9}{8}$ So, $\frac{11}{12}$ is smaller fraction.

3. Fill in the blanks with <, > :

(a) $\frac{11}{19} < \frac{14}{19}$ (b) $\frac{31}{62} > \frac{31}{67}$ (c) $5\frac{9}{2} < 9\frac{3}{2}$

(d) $5\frac{1}{3} > 2\frac{3}{5}$ (e) $\frac{3}{4} > \frac{1}{4}$ (f) $\frac{5}{3} > \frac{2}{5}$

(g) $\frac{3}{2} > \frac{1}{2}$ (h) $\frac{6}{9} < \frac{7}{9}$ (i) $\frac{5}{6} < \frac{7}{6}$

4. Arrange the given fractions in ascending order :

(a) $\frac{7}{3}, \frac{5}{3}, \frac{6}{3}, \frac{4}{3}, \frac{2}{3}$ We know that $2 < 4 < 5 < 6 < 7$

$\therefore \quad \frac{2}{3} < \frac{4}{3} < \frac{5}{3} < \frac{6}{3} < \frac{7}{3}$

(b) $\frac{5}{4}, \frac{5}{9}, \frac{5}{7}, \frac{5}{3}, \frac{5}{2}$ Given fractions have the same numerator So, the one with larger denominator is smaller. Now, $9 > 7 > 4 > 3 > 2$

Now these fractions are in ascending order $\frac{5}{9}, \frac{5}{7}, \frac{5}{4}, \frac{5}{3}, \frac{5}{2}$.

(c) $\frac{4}{13}, \frac{5}{12}, \frac{8}{9}$ We shall change the fractions into equivalent fractions with a common denominator. This common denominator is L.C.M. of 13, 12, 9.

2	13, 12, 9
2	13, 6, 9
3	13, 3, 9
3	13, 1, 3
13	13, 1, 1
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 3 \times 3 \times 13 = 468$

Now, we change all fractions into an equivalent fraction with denominator 468, we get $\frac{4\times36}{13\times36} = \frac{144}{468}, \frac{5\times39}{12\times39} = \frac{195}{468}, \frac{8\times52}{9\times52} = \frac{416}{468}$ Clearly, $\frac{144}{468} < \frac{195}{468} < \frac{416}{468}$

$\therefore \quad \frac{4}{13} < \frac{5}{12} < \frac{8}{9}$

(d) $\frac{5}{6}, \frac{3}{8}, \frac{9}{10}$ We shall change the fractions into equivalent fractions with a common denominator. This common denominator is LCM of 6, 8, 10.

2	6, 8, 10
2	3, 4, 5
2	3, 2, 5
3	3, 1, 5
5	1, 1, 5
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 2 \times 3 \times 5 = 120$

Now, we change all fractions into an equivalent fraction with denominator 120, we get $\frac{5\times20}{6\times20} = \frac{100}{120}, \frac{3\times15}{8\times15} = \frac{45}{120}, \frac{9\times12}{10\times12} = \frac{108}{120}$ Clearly, $\frac{45}{120} < \frac{100}{120} < \frac{108}{120}$

$\therefore \quad \frac{3}{8} < \frac{5}{6} < \frac{9}{10}$ Now given fractions are in ascending order.

(e) $\frac{3}{15}, \frac{8}{15}, \frac{7}{15}$ Here denominator of given fractions are same and we know that $3 < 7 < 8$

$\therefore \quad \frac{3}{15} < \frac{7}{15} < \frac{8}{15}$ So these fractions are in ascending order.

(f) $\frac{7}{17}, \frac{5}{17}, \frac{3}{17}$ Here denominator of given fractions are same and we know that

$3 < 5 < 7 \qquad \therefore \quad \frac{3}{17} < \frac{5}{17} < \frac{7}{17}$ So, now these fractions are in ascending order.

5. Arrange the given fractions in descending order :

(a) $\frac{8}{7}, \frac{8}{6}, \frac{8}{3}, \frac{8}{5}, \frac{8}{12}$

Given fractions have the same numerator. So, the one with smaller denominator is larger.

Now, $3 < 5 < 6 < 7 < 12 \qquad \therefore \quad \frac{8}{3} > \frac{8}{5} > \frac{8}{6} > \frac{8}{7} > \frac{8}{12}$

(b) $\frac{5}{9}, \frac{3}{9}, \frac{6}{9}, \frac{1}{9}, \frac{11}{9}$

We know that $11 > 6 > 5 > 3 > 1 \qquad \therefore \quad \frac{11}{9} > \frac{6}{9} > \frac{5}{9} > \frac{3}{9} > \frac{1}{9}$

(c) $\frac{5}{3}, \frac{7}{10}, \frac{11}{30}$

We shall change the given fractions with a common denominator, which is L.C.M. of 3, 10, 30.

2	3, 10, 30
3	3, 5, 15
5	1, 5, 5
	1, 1, 1

$\therefore \quad$ LCM $= 2 \times 3 \times 5 = 30$

Now, we change the fractions into an equivalent fraction with denominator 30, we get $\frac{5\times10}{3\times10} = \frac{50}{30}, \frac{7\times3}{10\times3} = \frac{21}{30}, \frac{11\times1}{30\times1} = \frac{11}{30}$ Clearly, $\frac{50}{30} > \frac{21}{30} > \frac{11}{30}$

$\therefore \quad \frac{5}{3} > \frac{7}{10} > \frac{11}{30}$

(d) $\frac{7}{6}, \frac{5}{12}, \frac{11}{18}$

We shall change the given fractions with a common denominator, which is LCM of 6, 12, 18.

2	6, 12, 18
2	3, 6, 9
3	3, 3, 9
3	1, 1, 3
	1, 1, 1

$\therefore \quad$ LCM $= 2 \times 2 \times 3 \times 3 = 36$

Now, we change the fractions into an equivalent fractions with denominator 36, we get $\frac{7}{6}\times\frac{6}{6} = \frac{42}{36}, \frac{5\times3}{12\times3} = \frac{15}{36}, \frac{11\times2}{18\times2} = \frac{22}{36}$ Clearly, $\frac{42}{36} > \frac{22}{36} > \frac{15}{36}$

$\therefore \quad \frac{7}{6} > \frac{11}{18} > \frac{5}{12}$ Hence the fractions are in descending order.

(e) $\frac{5}{12}, \frac{3}{20}, \frac{7}{8}$

We shall change the given fractions with a common denominator, which is LCM of 12, 20, 8.

2	12, 20, 8
2	6, 10, 4
2	3, 5, 2

3	3, 5, 1
5	1, 5, 1
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 2 \times 3 \times 5 = 120$

Now, we change the fractions into an equivalent fraction with denominatior 120 we get

$\frac{5\times10}{12\times10}=\frac{50}{120}, \frac{3\times6}{20\times6}=\frac{18}{120}, \frac{7\times15}{8\times15}=\frac{105}{120}$ Clearly, $\frac{105}{120}>\frac{50}{120}>\frac{18}{120}$

$\therefore \quad \frac{7}{8}>\frac{5}{12}>\frac{3}{20}$ Hence the fractions are in descending order.

(f) $\frac{8}{9}, \frac{7}{6}, \frac{11}{12}$

We shall change the given fractions with a common denominator, which is LCM of , 9, 6, 12.

LCM = 36

Now, we change the fractions into an equivalent fraction with denominator 36, we get

$\frac{8\times4}{9\times4}=\frac{32}{36}, \frac{7\times6}{6\times6}=\frac{42}{36}, \frac{11\times3}{12\times3}=\frac{33}{36}$ Clearly, $\frac{42}{36}>\frac{33}{36}>\frac{32}{36}$

$\frac{7}{6}>\frac{11}{12}>\frac{8}{9}$ Hence, the fractions are in descending order.

6. Hamid bought toffes of = ₹ $\frac{5}{8}$, Sohan bought bananas of = ₹ $\frac{7}{8}$

Now, $\frac{5}{8}<\frac{7}{8}$ So, Sohan expenses more.

7. Quantity of water in a drum = $\frac{2}{15}\,l$, Quantity of water in a tank = $\frac{17}{15}\,l$

Now, $\frac{2}{15}<\frac{17}{15}$ Hence a tank has much water.

8. Seema frock needs cloth = $\frac{4}{6}$ m, Parul frock needs cloth = $\frac{5}{6}$ m

Now, $\frac{4}{6}<\frac{5}{6}$ Hence Parul frock needs more cloth.

12. ADDITION AND SUBTRACTION OF FRACTIONS

Exercise - 23

1. Add the following :

(a) $\frac{2}{9}+\frac{5}{9}=\frac{2+5}{9}=\frac{7}{9}$ (b) $\frac{7}{11}+\frac{8}{11}=\frac{7+8}{11}=\frac{15}{11}$ (c) $\frac{6}{12}+\frac{3}{12}=\frac{6+3}{12}=\frac{9}{12}$

(d) $\frac{5}{23}+\frac{17}{23}=\frac{5+17}{23}=\frac{22}{23}$ (e) $\frac{17}{24}+\frac{16}{24}=\frac{17+16}{24}=\frac{33}{24}$ (f) $\frac{15}{32}+\frac{20}{32}=\frac{15+20}{32}=\frac{35}{32}$

(g) $\frac{14}{20}+\frac{15}{20}=\frac{14+15}{20}=\frac{29}{20}$ (h) $\frac{5}{17}+\frac{14}{17}=\frac{5+14}{17}=\frac{19}{17}$

(i) $\frac{7}{13}+\frac{6}{13}+\frac{4}{13}=\frac{7+6+4}{13}=\frac{17}{13}$ (j) $\frac{15}{14}+\frac{7}{14}+\frac{8}{14}=\frac{15+7+8}{14}=\frac{30}{14}$

(k) $\frac{15}{21}+\frac{12}{21}+\frac{18}{21}=\frac{15+12+18}{21}=\frac{45}{21}$ (l) $\frac{12}{17}+\frac{1}{17}+\frac{13}{17}+\frac{19}{17}=\frac{12+1+13+19}{17}=\frac{45}{17}$

2. Add :

(a) $\frac{3}{9}+\frac{2}{7}$

LCM of 9 and $7 = 3 \times 3 \times 7 = 63$

Now, $\frac{3\times7}{9\times7}=\frac{21}{63}$ and $\frac{2\times9}{7\times9}=\frac{18}{63}$

$\therefore \quad \frac{21}{63}+\frac{18}{63}=\frac{21+18}{63}=\frac{39}{63}$

(b) $\frac{5}{3}+\frac{7}{4}$

LCM of 3 and $4 = 2 \times 2 \times 3 = 12$

Now, $\frac{5\times4}{3\times4}=\frac{20}{12}$ and $\frac{7\times3}{4\times3}=\frac{21}{12}$

$\therefore \quad \frac{20}{12}+\frac{21}{12}=\frac{20+21}{12}=\frac{41}{12}$ or $3\frac{5}{12}$

(c) $\frac{5}{8}+\frac{7}{4}$

LCM of 8 and 4 = 2 × 2 × 2 = 8

Now, $\frac{5\times1}{8\times1}=\frac{5}{8}$ and $\frac{7\times2}{4\times2}=\frac{14}{8}$

$\therefore \quad \frac{5}{8}+\frac{14}{8}=\frac{5+14}{8}=\frac{19}{8}$ or $2\frac{3}{8}$

(d) $\frac{6}{20}+\frac{15}{40}$

LCM of 20 and 40 = 2 × 2 × 2 × 5 = 40

Now, $\frac{6\times2}{20\times2}=\frac{12}{40}$ and $\frac{15\times1}{40\times1}=\frac{15}{40}$

$\therefore \quad \frac{12}{40}+\frac{15}{40}=\frac{12+15}{40}=\frac{27}{40}$

(e) $\frac{6}{24}+\frac{15}{20}$

LCM of 24 and 20 = 2 × 2 × 2 × 3 × 5 = 120

Now, $\frac{6\times5}{24\times5}=\frac{30}{120}$ and $\frac{15\times6}{20\times6}=\frac{90}{120}$

$\therefore \quad \frac{30}{120}+\frac{90}{120}=\frac{30+90}{120}=\frac{120}{120}=1$

(f) $\frac{4}{10}+\frac{16}{12}$

LCM of 10 and 12 = 2 × 2 × 3 × 5 = 60

Now, $\frac{4\times6}{10\times6}=\frac{24}{60}$ and $\frac{16\times5}{12\times5}=\frac{80}{60}$

$\therefore \quad \frac{24}{60}+\frac{80}{60}=\frac{24+80}{60}=\frac{104}{60}$ or $\frac{26}{15}$

(g) $\frac{5}{7}+\frac{6}{9}$

LCM of 7 and 9 = 3 × 3 × 7 = 63

Now, $\frac{5\times9}{7\times9}=\frac{45}{63}$ and $\frac{6\times7}{9\times7}=\frac{42}{63}$

$\therefore \quad \frac{45}{63}+\frac{42}{63}=\frac{45+42}{63}=\frac{87}{63}$

(h) $\frac{7}{27}+\frac{25}{3}$

LCM of 27 and 3 = 3 × 3 × 3 = 27

Now, $\frac{7\times1}{27\times1}=\frac{7}{27}$ and $\frac{25\times9}{3\times9}=\frac{225}{27}$

$\therefore \quad \frac{7}{27}+\frac{225}{27}=\frac{7+225}{27}=\frac{232}{27}$

(i) $\frac{11}{9}+\frac{2}{3}$

LCM of 9 and 3 = 3 × 3 = 9

Now, $\frac{11\times1}{9\times1}=\frac{11}{9}$ and $\frac{2\times3}{3\times3}=\frac{6}{9}$

$\therefore \quad \frac{11}{9}+\frac{6}{9}=\frac{11+6}{9}=\frac{17}{9}$

(j) $\frac{16}{27}+\frac{2}{9}$

LCM of 27 and 9 = 3 × 3 × 3 = 27

Now, $\frac{16\times1}{27\times1}=\frac{16}{27}$ and $\frac{2\times3}{9\times3}=\frac{6}{27}$

$\therefore \quad \frac{16}{27}+\frac{6}{27}=\frac{16+6}{27}=\frac{22}{27}$

(k) $\frac{5}{8}+\frac{6}{2}+2$

LCM of 8, 2 and 1 = 2 × 2 × 2 = 8

Now, $\frac{5\times1}{8\times1}=\frac{5}{8}$, $\frac{6\times2}{4\times2}=\frac{12}{8}$ and $\frac{2\times8}{1\times8}=\frac{16}{8}$

$\therefore \quad \frac{5}{8}+\frac{24}{8}+\frac{16}{8}=\frac{5+24+16}{8}=\frac{45}{8}$ or $5\frac{5}{8}$

(l) $\frac{7}{9}+\frac{5}{12}$

LCM of 9 and 12 = 2 × 2 × 3 × 3 = 36

Now, $\frac{7\times4}{9\times4}=\frac{28}{36}$ and $\frac{5\times3}{12\times3}=\frac{15}{36}$

$\therefore \quad \frac{28}{36}+\frac{15}{36}=\frac{28+15}{36}=\frac{43}{36}$

(m) $\frac{4}{15}+\frac{7}{12}+\frac{8}{9}$

LCM of 15, 12 and 9 = 2 × 2 × 3 × 3 × 5 = 180

Now, $\frac{4\times12}{15\times12}=\frac{48}{180}$, $\frac{7\times15}{12\times15}=\frac{105}{180}$ and $\frac{8\times20}{9\times20}=\frac{160}{180}$

$\therefore \quad \frac{48}{180}+\frac{105}{180}+\frac{160}{180}=\frac{48+105+160}{180}=\frac{313}{180}$

(n) $\frac{3}{14}+\frac{10}{21}+\frac{15}{28}$

LCM of 14, 21 and 28 = 2 × 2 × 3 × 7 = 84

Now, $\frac{3\times6}{14\times6}=\frac{18}{84}$, $\frac{10\times4}{21\times4}=\frac{40}{84}$ and $\frac{15\times3}{28\times3}=\frac{45}{84}$

$\therefore \quad \frac{18}{84}+\frac{40}{84}+\frac{45}{84}=\frac{18+40+45}{84}=\frac{103}{84}$

(o) $\frac{2}{3}+\frac{5}{18}+\frac{4}{9}$

LCM of 3, 18 and 9 = 2 × 3 × 3 = 18

Now, $\frac{2\times6}{3\times6}=\frac{12}{18}$, $\frac{5\times1}{18\times1}=\frac{5}{18}$ and $\frac{4\times2}{9\times2}=\frac{8}{18}$

$\therefore \quad \frac{12}{18}+\frac{5}{18}+\frac{8}{18}=\frac{12+5+8}{18}=\frac{25}{18}$

3. Add the following :

(a) $2\frac{1}{3}+5\frac{5}{3}=\frac{6}{3}+\frac{20}{3}=\frac{7+20}{3}=\frac{27}{3}=9$

(b) $2\frac{4}{5}+3\frac{2}{5}=\frac{14}{5}+\frac{17}{5}=\frac{14+17}{5}=\frac{31}{5}=6\frac{1}{5}$

(c) $7\frac{1}{2}+5\frac{1}{2}=\frac{15}{2}+\frac{11}{2}=\frac{15+11}{2}=\frac{26}{2}=13$

(d) $5\frac{4}{6}+7\frac{1}{6}=\frac{34}{6}+\frac{43}{6}=\frac{34+43}{6}=\frac{77}{6}=12\frac{5}{6}$

(e) $1\frac{1}{3}+1\frac{4}{9}=\frac{4}{3}+\frac{13}{9}$

$\therefore \quad \frac{12}{9}+\frac{13}{9}=\frac{12+13}{9}=\frac{25}{9}=2\frac{7}{9}$

(f) $2\frac{1}{5}+1\frac{2}{15}=\frac{11}{5}+\frac{17}{15}$

LCM of 5 and 15 = 3 × 5 = 15

Now, $\frac{11\times3}{5\times3}=\frac{33}{15}$ and $\frac{17\times1}{15\times1}=\frac{17}{15}$

$\therefore \quad \frac{33}{15}+\frac{17}{15}=\frac{33+17}{15}=\frac{50}{15}$ or $\frac{10}{3}=3\frac{1}{3}$

(g) $2\frac{1}{4}+1\frac{3}{6}=\frac{9}{4}+\frac{9}{6}$

L.C.M of 4 and 6 = 2 × 2 × 3 = 12

Now, $\frac{9\times3}{4\times3}=\frac{27}{12}$ and $\frac{9\times2}{6\times2}=\frac{18}{12}$

$\therefore \quad \frac{27}{12}+\frac{18}{12}=\frac{45}{12}=\frac{15}{4}=3\frac{3}{4}$

(h) $2\frac{2}{5}+2\frac{1}{10}=\frac{12}{5}+\frac{21}{10}$

LCM of 5 and 10 = 2 × 5 = 10

Now, $\frac{12\times2}{5\times2}=\frac{24}{10}$ and $\frac{21\times1}{10\times1}=\frac{21}{10}$

$\therefore \quad \frac{24}{10}+\frac{21}{10}=\frac{45}{10}=\frac{9}{2}=4\frac{1}{2}$

(i) $1\frac{2}{7}+3\frac{1}{7}+2\frac{2}{7}=\frac{9}{7}+\frac{22}{7}+\frac{16}{7}$

$=\frac{9+22+16}{7}=\frac{47}{7}$ or $6\frac{5}{7}$

(j) $1\frac{4}{11}+3\frac{5}{11}+2\frac{7}{11}=\frac{15}{11}+\frac{38}{11}+\frac{29}{11}$

$=\frac{15+38+29}{11}=\frac{82}{11}=7\frac{5}{11}$

(k) $2\frac{1}{3}+1\frac{2}{9}+2\frac{3}{9}=\frac{7}{3}+\frac{11}{9}+\frac{21}{9}$

LCM of 3, 9 and 9 = 3 × 3 = 9

Now, $\frac{7\times3}{3\times3}=\frac{21}{9}$, $\frac{11\times1}{9\times1}=\frac{11}{9}$

and $\frac{21\times1}{9\times1}=\frac{21}{9}$

$\therefore \quad \frac{21}{9}+\frac{11}{9}+\frac{21}{9}=\frac{53}{9}=5\frac{8}{9}$

(l) $\frac{2}{10}+1\frac{4}{10}+1\frac{1}{10}=\frac{2}{10}+\frac{14}{10}+\frac{11}{10}$

$=\frac{2+14+11}{10}=\frac{27}{10}=2\frac{7}{10}$

(m) $2\frac{3}{8}+2+\frac{3}{8}$

$\frac{19}{8}+\frac{2}{1}+\frac{3}{8}$

LCM of 8, 1 and 8 = 2 × 2 × 2 = 8

Now, $\frac{19\times1}{8\times1}=\frac{19}{8}$, $\frac{2\times8}{1\times8}=\frac{16}{8}$ and $\frac{3\times1}{8\times1}=\frac{3}{8}$

$\therefore \quad \frac{19}{8}+\frac{16}{8}+\frac{3}{8}=\frac{19+16+3}{8}=\frac{38}{8}=\frac{19}{4}$

$=4\frac{3}{4}$

(n) $\frac{5}{8}+3+2\frac{3}{8}+4\frac{1}{8}=\frac{5}{8}+\frac{3}{1}+\frac{19}{8}+\frac{33}{8}$

LCM of 8, 1, 8 and 8 = 2 × 2 × 2 = 8

Now, $\frac{5\times1}{8\times1}=\frac{5}{8}$, $\frac{3\times8}{1\times8}=\frac{24}{8}$, $\frac{19\times1}{8\times1}=\frac{19}{8}$

and $\frac{33\times1}{8\times1}=\frac{33}{8}$

$\therefore \quad \frac{5}{8}+\frac{24}{8}+\frac{19}{8}+\frac{33}{8}=\frac{5+24+19+33}{8}=\frac{81}{8}$

or $10\frac{1}{8}$

(o) $2\frac{1}{14}+1\frac{5}{14}+\frac{2}{14}+\frac{1}{14}=\frac{29}{14}+\frac{19}{14}+\frac{2}{14}+\frac{1}{14}=\frac{29+19+2+1}{14}=\frac{51}{14}=3\frac{9}{14}$

Exercise - 24

(a) $\frac{6}{15}-\frac{2}{15}=\frac{6-2}{15}=\frac{4}{15}$

(b) $\frac{5}{8}-\frac{2}{8}=\frac{5-2}{8}=\frac{3}{8}$

(c) $\frac{15}{31}-\frac{13}{31}=\frac{15-13}{31}=\frac{2}{31}$

(d) $\frac{8}{11}-\frac{5}{11}=\frac{8-5}{11}=\frac{3}{11}$ (e) $\frac{13}{19}-\frac{4}{19}=\frac{13-4}{19}=\frac{9}{19}$ (f) $\frac{14}{20}-\frac{7}{20}=\frac{14-7}{20}=\frac{7}{20}$

(g) $\frac{19}{47}-\frac{2}{47}=\frac{19-2}{47}=\frac{17}{47}$ (h) $\frac{28}{47}-\frac{16}{47}=\frac{28-16}{47}=\frac{12}{47}$ (i) Subtract $\frac{5}{17}$ from $\frac{14}{17}$

$=\frac{14}{17}-\frac{5}{17}=\frac{14-5}{17}=\frac{9}{17}$

(j) Subtract $\frac{14}{19}$ from $\frac{23}{19}$

$=\frac{23}{19}-\frac{14}{19}=\frac{23-14}{19}=\frac{9}{19}$

(k) Subtract $\frac{3}{11}$ from $\frac{6}{11}$

$=\frac{6}{11}-\frac{3}{11}=\frac{6-3}{11}=\frac{3}{11}$

(l) Subtract $\frac{5}{8}$ from $\frac{7}{8}$

$\frac{7}{8}-\frac{5}{8}=\frac{7-5}{8}=\frac{2}{8}$

2. Subtract :

(a) $\frac{8}{9}-\frac{5}{18}$

LCM of 9 and 18 $= 2 \times 3 \times 3 = 18$

Now, $\frac{8\times2}{9\times2}=\frac{16}{18}$ and $\frac{5\times1}{18\times1}=\frac{5}{18}$

$\therefore \quad \frac{16}{18}-\frac{5}{18}=\frac{16-5}{18}=\frac{11}{18}$

(b) $\frac{5}{10}-\frac{4}{15}$

LCM of 10 and $15 = 2 \times 3 \times 5$

Now, $\frac{5\times3}{10\times3}=\frac{15}{30}$ and $\frac{4\times2}{15\times2}=\frac{8}{30}$

$\therefore \quad \frac{15}{30}-\frac{8}{30}=\frac{7}{30}$

(c) $\frac{16}{20}-\frac{5}{10}$

LCM of 20 and $10 = 2 \times 2 \times 5 = 20$

Now, $\frac{16\times1}{20\times1}=\frac{16}{20}$ and $\frac{5\times2}{10\times2}=\frac{10}{20}$

$\therefore \quad \frac{16}{20}-\frac{10}{20}=\frac{16-10}{20}=\frac{6}{20}=\frac{3}{10}$

(d) $\frac{5}{8}-\frac{1}{16}$

LCM of 8 and $16 = 2 \times 2 \times 2 \times 2 = 16$

Now, $\frac{5\times2}{8\times2}=\frac{10}{16}$ and $\frac{1\times1}{16\times1}=\frac{1}{16}$

$\therefore \quad \frac{10}{16}-\frac{1}{16}=\frac{10-1}{16}=\frac{9}{16}$

(e) $\frac{5}{8}-\frac{3}{20}$

LCM of 8 and $20 = 2 \times 2 \times 2 \times 5 = 40$

Now, $\frac{5\times5}{8\times5}=\frac{25}{40}$ and $\frac{3\times2}{20\times2}=\frac{6}{40}$

$\therefore \quad \frac{25}{40}-\frac{6}{40}=\frac{25-6}{40}=\frac{19}{40}$

(f) $\frac{8}{21}-\frac{2}{7}$

LCM of 21 and $7 = 3 \times 7 = 21$

Now, $\frac{8\times1}{21\times1}=\frac{8}{21}$ and $\frac{2\times3}{7\times3}=\frac{6}{21}$

$\therefore \quad \frac{8}{21}-\frac{6}{21}=\frac{8-6}{21}=\frac{2}{21}$

(g) $\frac{5}{15}-\frac{2}{20}$

LCM of 15 and $20 = 2 \times 2 \times 3 \times 5 = 60$

Now, $\frac{5\times4}{15\times4}=\frac{20}{60}$ and $\frac{2\times3}{20\times3}=\frac{6}{60}$

$\therefore \quad \frac{20}{60}-\frac{6}{60}=\frac{20-6}{60}=\frac{14}{60}$ or $\frac{7}{30}$

(h) $\frac{10}{18}-\frac{3}{36}$

LCM of 18 and $36 = 2 \times 2 \times 3 \times 3 = 36$

Now, $\frac{10\times2}{18\times2}=\frac{20}{36}$ and $\frac{3\times1}{36\times1}=\frac{3}{36}$

$\therefore \quad \frac{20}{36}-\frac{3}{36}=\frac{20-3}{36}=\frac{17}{36}$

(i) $\frac{3}{7}-\frac{2}{7}=\frac{3-2}{7}=\frac{1}{7}$

(j) $\frac{2}{8}-\frac{1}{16}$

LCM of 8, $16 = 2 \times 2 \times 2 \times 2 = 16$

Now, $\frac{2\times2}{8\times2}=\frac{4}{16}$ and $\frac{1\times1}{16\times1}=\frac{1}{16}$

$\therefore \quad \frac{4}{16}-\frac{1}{16}=\frac{4-1}{16}=\frac{3}{16}$

3. By taking LCM of 15 and $18 = 2 \times 3 \times 3 \times 5 = 90$

Now, $\frac{11\times6}{15\times6}=\frac{66}{90}$ and $\frac{5\times5}{18\times5}=\frac{25}{90}$ $\quad \therefore \quad \frac{66}{90}-\frac{25}{90}=\frac{66-25}{90}=\frac{41}{90}$

4. To get required fractions we subtract $\frac{1}{3}$ from $\frac{1}{2}$

So, $\frac{1}{2}-\frac{1}{3}$ L.C.M. of 2 and $3 = 2 \times 3 = 6$

Now $\frac{1\times3}{2\times3}=\frac{3}{6}$ or $\frac{1\times2}{3\times2}=\frac{2}{6}$ $\quad \therefore \quad \frac{3}{6}-\frac{2}{6}=\frac{1}{6}$

5. To get required fraction we subtract $\frac{1}{2}$ from $\frac{3}{4}$ So $\frac{3}{4}-\frac{1}{2}$

L.C.M. of 4 and 2 = 2 × 2 = 4

Now, $\frac{3\times1}{4\times1}=\frac{3}{4}$ and $\frac{1\times2}{2\times2}=\frac{2}{4}$ ∴ $\frac{3}{4}-\frac{2}{4}=\frac{1}{4}$

6. To get required fraction we subtract $\frac{5}{7}$ from $\frac{3}{4}$. So, $\frac{3}{4}-\frac{5}{7}$

L.C.M. of 4 and 7 = 2 × 2 × 7 = 28

Now, $\frac{3\times7}{4\times7}=\frac{21}{28}$ and $\frac{5\times4}{7\times4}=\frac{20}{28}$ ∴ $\frac{21}{28}-\frac{20}{28}=\frac{21-20}{28}=\frac{1}{28}$

7. To get required fraction we subtract $\frac{3}{8}$ from $\frac{5}{6}$ So, $\frac{5}{6}-\frac{3}{8}$

L.C.M. of 6 and 8 = 2 × 2 × 2 × 3 = 24

Now, $\frac{5\times4}{6\times4}=\frac{20}{24}$ and $\frac{3\times3}{8\times3}=\frac{9}{24}$ ∴ $\frac{20}{24}-\frac{9}{24}=\frac{20-9}{24}=\frac{11}{24}$

8. Subtract :

(a) $3-\frac{2}{5}=\frac{3}{1}-\frac{2}{5}$

L.C.M. of 1 and 5 = 5

Now, $\frac{3\times5}{1\times5}=\frac{15}{5}$ and $\frac{2\times1}{5\times1}=\frac{2}{5}$

∴ $\frac{15}{5}-\frac{2}{5}=\frac{15-2}{5}=\frac{13}{5}$ or $2\frac{3}{5}$

(b) $5-\frac{4}{6}=\frac{5}{1}-\frac{4}{6}$

L.C.M. of 1 and 6 = 6

Now, $\frac{5\times6}{1\times6}=\frac{30}{6}$ and $\frac{4\times1}{6\times1}=\frac{4}{6}$

∴ $\frac{30}{6}-\frac{4}{6}=\frac{30-4}{6}=\frac{26}{6}=\frac{13}{3}=4\frac{1}{3}$

(c) $9-\frac{1}{4}$

L.C.M. of 1 and 4 = 4

Now, $\frac{9\times4}{1\times4}=\frac{36}{4}$ and $\frac{1\times1}{4\times1}=\frac{1}{4}$

∴ $\frac{36}{4}-\frac{1}{4}=\frac{36-1}{4}=\frac{35}{4}$ or $8\frac{3}{4}$

(d) $4\frac{5}{6}-3\frac{2}{6}=\frac{29}{6}-\frac{20}{6}$

$=\frac{29-20}{6}=\frac{9}{6}=\frac{3}{2}$

(e) $5\frac{1}{2}-3\frac{1}{2}=\frac{11}{2}-\frac{7}{2}=\frac{11-7}{2}=\frac{4}{2}=2$

(f) $7\frac{3}{4}-3\frac{3}{4}=\frac{31}{4}-\frac{15}{4}=\frac{31-15}{4}=\frac{16}{4}=4$

(g) $4\frac{12}{25}-1\frac{8}{25}=\frac{112}{25}-\frac{33}{25}$

$=\frac{112-33}{25}=\frac{79}{25}$ or $3\frac{4}{25}$

(h) $6\frac{7}{8}-1\frac{5}{8}=\frac{55}{8}-\frac{13}{8}=\frac{55-13}{8}=\frac{42}{8}=\frac{21}{4}=5\frac{1}{4}$

(i) $2\frac{20}{12}-1\frac{11}{12}=\frac{44}{12}-\frac{23}{12}=\frac{44-23}{12}=\frac{21}{12}$

(j) $2\frac{3}{7}-1\frac{2}{7}=\frac{17}{7}-\frac{9}{7}=\frac{17-9}{7}=\frac{8}{7}=1\frac{1}{7}$

Exercise - 25

1. Suresh bought guavas = $\frac{2}{5}$ kg, Hamid bought guavas = $\frac{7}{5}$ kg

Total guavas bought by them ∴ $\frac{2}{5}+\frac{7}{5}=\frac{2+7}{5}=\frac{9}{5}$ or $1\frac{4}{5}$

2. Cost of flour = ₹ $4\frac{1}{2}$, Cost of Pulse = ₹ $5\frac{1}{2}$, Cost of rice = ₹ $2\frac{1}{2}$

Total expenses $=4\frac{1}{2}+5\frac{1}{2}+2\frac{1}{2}=\frac{9}{2}+\frac{11}{2}+\frac{5}{2}=\frac{9+11+5}{2}=\frac{25}{2}$ or ₹ $12\frac{1}{2}$

3. The length of three pieces of a rope are $2\frac{1}{2}$ m, $1\frac{3}{2}$ m and $2\frac{1}{4}$m

Total length of rope = $2\frac{1}{2}+1\frac{3}{2}+2\frac{1}{4}=\frac{5}{2}+\frac{5}{2}+\frac{9}{4}$

$= \frac{5\times2}{2\times2}+\frac{5\times2}{5\times2}+\frac{9}{4}=\frac{10}{4}+\frac{10}{4}+\frac{9}{4}=\frac{29}{4}=7\frac{1}{4}$ m

4. Weight of ghee $= 10\frac{2}{9}$ kg, Ghee used from them $= 6\frac{2}{9}$ kg

$\therefore$ Weight of left ghee $= 10\frac{2}{9}-6\frac{2}{9}=\frac{92}{9}-\frac{56}{9}=\frac{92-56}{9}=\frac{36}{9}=4$ kg

5. Length of a rope $= 12\frac{1}{2}$m, Length of first part $= 6\frac{1}{2}$m

$\therefore$ Length of second part $= 12\frac{1}{2}-6\frac{1}{2}=\frac{25}{2}-\frac{13}{2}=\frac{12}{2}=6$ m

6. Length of jumped by afrog are : $\frac{1}{4}$, $\frac{5}{4}$ and $\frac{3}{4}$ m.

Total length jumped by it $= \frac{1}{4}+\frac{5}{4}+\frac{3}{4}=\frac{1+5+3}{4}=\frac{9}{4}$ or $2\frac{1}{4}$ m

7. Hari bought cloth $= \frac{7}{8}$ m, Vimla bought cloth $= \frac{2}{8}$ m

Total length of cloth $= \frac{7}{8}+\frac{2}{8}=\frac{7+2}{8}=\frac{9}{8}$ m or $1\frac{1}{8}$ m

8. Shirt needs cloth $= 1\frac{4}{5}$ m, Salwar needs cloth $= 2\frac{1}{5}$ m

$\therefore$ Total length of cloth $= 1\frac{4}{5}+2\frac{1}{5}=\frac{9}{5}+\frac{11}{5}=\frac{9+11}{5}=\frac{20}{5}=4$ m.

9. Seema solved sums in three days $= \frac{1}{2}, \frac{1}{4}, \frac{1}{3}$ parts

Total sums solved by her $= \frac{1}{2}+\frac{1}{4}+\frac{1}{3}$

L.C.M. of 2, 4, 3 = 2 × 2 × 3 = 12

$= \frac{1\times6}{2\times6}+\frac{1\times3}{4\times3}+\frac{1\times4}{3\times4}=\frac{6}{12}+\frac{3}{12}+\frac{4}{12}=\frac{6+3+4}{12}=\frac{13}{12}$ of $1\frac{1}{12}$.

10. Leela got money from her father $= ₹\ 5\frac{3}{4}$

Leela got money from her mother = $= ₹\ 3\frac{3}{4}$

Total money she got $= 5\frac{3}{4}+3\frac{3}{4}=\frac{23}{4}+\frac{15}{4}=\frac{23+15}{4}=\frac{38}{4}=\frac{19}{2}$ or $₹\ 9\frac{1}{2}$

11. Weight of flour $= 6\frac{1}{4}$ kg, Weight of pulse $= 3\frac{1}{4}$ kg, Weight of rice $= 5\frac{1}{2}$ kg

Total weight $= 6\frac{1}{4}+3\frac{1}{4}+5\frac{1}{2}=\frac{25}{4}+\frac{13}{4}+\frac{11}{2}$

L.C.M. of 4, 4, 2 = 2 × 2 = 4

$= \frac{25\times1}{4\times1}+\frac{13\times1}{4\times1}+\frac{11\times2}{2\times2}=\frac{25}{4}+\frac{13}{4}+\frac{22}{4}=\frac{25+13+22}{4}=\frac{60}{4}=15$ kg

12. Weight of tin $= 1\frac{1}{4}$ kg, Weight of oil $= 10\frac{1}{4}$ kg

The total weight of tin with oil $= 1\frac{1}{4}+10\frac{1}{4}=\frac{5}{4}+\frac{41}{4}=\frac{5+41}{4}=\frac{46}{4}=\frac{23}{2}$ or $11\frac{1}{2}$ kg.

13. Weight of wheat $= 4\frac{1}{2}$ quintal, Weight of rice $= 4\frac{1}{2}$ quintal, Weight of maize $= 3\frac{1}{2}$ quintal

$\therefore$ Total grain grown by him $= 4\frac{1}{2}+4\frac{1}{2}+3\frac{1}{2}=\frac{9}{2}+\frac{9}{2}+\frac{7}{2}=\frac{9+9+7}{2}=\frac{25}{2}$ or $12\frac{1}{2}$ quintal.

14. Weight of date $= 8\frac{1}{3}$ kg, Weight of grapes $= 10\frac{3}{3}$ kg, Weight of apricot $= 5\frac{2}{3}$ kg

$\therefore$ The total weight of fruits in shop $= 8\frac{1}{3}+10\frac{3}{3}+5\frac{2}{3}=\frac{25}{3}+\frac{33}{3}+\frac{17}{3}=\frac{25+33+17}{3}$

$= \frac{75}{3}=25$ kg

15. Weight of ghee = $5\frac{5}{7}$ kg, Ghee used from them = $3\frac{2}{7}$ kg

Weight of left ghee = $5\frac{5}{7} - 3\frac{2}{7} = \frac{40}{7} - \frac{23}{7} = \frac{40-23}{7} = \frac{17}{7}$ or $2\frac{3}{7}$ kg

16. Distance walked by Kundan = $2\frac{5}{20}$ m, Distance walked by Anjali = $1\frac{2}{20}$ m

$\therefore \quad 2\frac{5}{20} > 1\frac{2}{20} = \frac{45}{20} > \frac{22}{20}$

Hence Kundan walked more and

$\therefore \quad \frac{45}{20} - \frac{22}{20} = \frac{23}{20}$ or $1\frac{3}{20}$ m

17. Total weight of gas = 12 kg, Gas used = $5\frac{1}{2}$ kg

$\therefore$ Left gas in cylinder = $12 - 5\frac{1}{2} = \frac{12}{1} - \frac{11}{2} = \frac{12\times 2-11}{2} = \frac{24-11}{2} = \frac{13}{2}$ or $6\frac{1}{2}$ kg

Formative Assessment-2 (Lesson 7 to 12)

1. Is first number is multiple of second number tick (✓) or cross (7) :

(a) 42, 6 (✓) (b) 41, 7 (✗) (c) 31, 5 (✗) (d) 51, 17 (✓)

(e) 39, 13 (✓) (f) 22, 14 (✗) (g) 40, 10 (✓) (h) 24, 9 (✗)

2. Is the first number is divisible by the second number? Tick (✓) or cross (✗) :

(a) 36, 9 (✓) (b) 28, 7 (✓) (c) 21, 6 (✗) (d) 29, 8 (✗)

3. Find the LCM by writing factors :

(a) 20, 15

Multiples of 20 = 20, 40, **60**, 80, 100, **120**, ...

Multiples of 15 = 15, 30, 45, **60**, 75, 90, 105, **120**, ...

Common multiples of 20 and 45 = 60, 120, ...

$\therefore$ LCM of 20 and 15 = 60

(b) 4, 8

Multiples of 4 = 4, **8**, 12, **16**, 20, **24**, ...; Multiples of 8 = **8**, **16**, **24**, 32, 40, ...

Common multiples of 4 and 8 = 8, 16, 24, ...

$\therefore$ LCM of 4 and 8 = 8

(c) 6, 12

Multiples of 6 = 6, **12**, 18, **24**, 30, ...; Multiples of 12 = **12**, **24**, 36, 48, 60, ...

Common multiples of 6 and 12 = 12, 24, ...

$\therefore$ LCM of 6 and 12 = 12

(d) 24, 28

Multiples of 24 = 24, 48, 72, 96, 120, 144, **168**, ... ;

Multiples of 28 = 28, 56, 84, 112,140, **168**, ...

Common multiples of 24 and 28 = 168, ...

$\therefore$ LCM of 24 and 28 = 168

4. Find the co-prime numbers in the following pairs :

(a) 89, 110

Factors of 89 = **1**, 89

Factors of 110 = **1**, 2, 5, 10, 11, 55, 110

$\therefore$ Common factor is only 1 so this pair is co-prime.

(b) 17, 29

Factors of 17 = **1**, 17

Factors of 19 = **1**, 19

$\therefore$ Common factor is only 1 so this pair is co-prime.

(c) 17, 19

Factors of 17 = **1**, 17

Factors of 19 = **1**, 19

$\therefore$ Common factor is only 1 so this pair is co-prime.

(d) 24, 20

Factors of 24 = **1**, **2**, 3, **4**, 6, 8, 12, 24

Factors of 20 = **1**, **2**, **4**, 5, 10, 20

It has 2, 4 common factors other than 1 so it is not co-prime.

5. Find the HCF by prime factorisation method of the following numbers :

(a) 65, 70

5	65
13	13
	1

2	70
5	35
7	7
	1

Factors of 65 = **5** × 13
Factors of 70 = 2 × **5** × 7
∴ Common factors = 5
So HCF = 5

(b) 55, 33, 77

5	55
11	11
	1

3	33
11	11
	1

7	77
11	11
	1

Factors of 55 = 5 × **11**, Factors of 33 = 3 × **11**
Factors of 77 = 7 × **11**
∴ Common factors = 11
So HCF = 11

(c) 40, 156

2	40
2	20
2	10
5	5
	1

2	156
2	78
3	39
13	13
	1

Factors of 40 = **2** × **2** × 2 × 5
Factors of 156 = **2** × **2** × 3 × 13
∴ Common factors = 2 × 2 = 4
So HCF = 4

(d) 48, 84

2	48
2	24
2	12
2	6
3	3
	1

2	84
2	42
3	21
7	7
	1

Factors of 48 = **2** × **2** × 2 × **3** × 2
Factors of 84 = **2** × **2** × **3** × 7
∴ Common factors = 2 × 2 × 3; So HCF = 12

6. Write following into fraction :

(a) $11 \div 4 = \frac{11}{4}$ (b) $4 \div 7 = \frac{4}{7}$ (c) $11 \div 7 = \frac{11}{7}$ (d) $6 \div 13 = \frac{6}{13}$

7. Write each of the given fraction with numerator as 15 :

(a) $\frac{5}{8}$
Because numerator is 15
So, $\frac{5\times3}{8\times3} = \frac{15}{24}$

(b) $\frac{3}{5}$
Because numerator is 15
So, $\frac{3\times5}{5\times5} = \frac{15}{25}$

(c) $\frac{30}{40}$
Because numerator is 15
So, $\frac{30\div2}{40\div2} = \frac{15}{20}$

(d) $\frac{1}{3}$
Because numerator is 15
So, $\frac{1\times15}{3\times15} = \frac{15}{45}$

8. Fill in the blanks with <, > or = :

(a) $\frac{11}{19} < \frac{14}{19}$ (b) $\frac{31}{62} > \frac{31}{67}$ (c) $5\frac{9}{2} < 9\frac{3}{2}$

(d) $5\frac{1}{3} > 2\frac{3}{5}$ (e) $\frac{3}{4} > \frac{1}{4}$

9. Add the following :

(a) $\frac{2}{9} + \frac{5}{9} = \frac{2+5}{9} = \frac{7}{9}$ (b) $\frac{7}{11} + \frac{8}{11} = \frac{7+8}{11} = \frac{15}{11}$ (c) $\frac{6}{12} + \frac{3}{12} = \frac{6+3}{12} = \frac{9}{12}$

(d) $\frac{5}{23} + \frac{17}{23} = \frac{5+17}{23} = \frac{22}{23}$

10. Cost of a chair = ₹ 120
Cost of 3 chairs = 120 ×3 = ₹ 360
Cost of a table = three times the cost of a chair = ₹ 3 × 120 = ₹ 360
∴ Cost of 4 tables = 4 × 360 = ₹ 1440
∴ Total cost of 3 chairs and 4 tables = ₹ (360 + 1440) = ₹ 1800

11. The least no. of girls will be the LCM of 14, 21 and 28

2	14, 21, 28
2	7, 21, 14
3	7, 21, 7
7	7, 7, 7
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 3 \times 7 = 84$
So the least no. of girls = 84

12. The two pieces of wire are 180 m and 220 m of length. To find the maximum no. of pieces of length. We find HCF of 180 and 220.

So,

2	180
2	90
3	45
3	15
5	5
	1

2	220
2	110
5	55
11	11
	1

Factors of 180 = $\mathbf{2} \times \mathbf{2} \times 3 \times 3 \times \mathbf{5}$
Factors of 220 = $\mathbf{2} \times \mathbf{2} \times \mathbf{5} \times 11$
$\therefore$ HCF of 180 and 220 = $2 \times 2 \times 5 = 20$
So the maximum no. of length of pieces = 20 m.
Also, total length of wire = 180 + 220 = 400 m
Length of each piece = 20 m

Total No. of pieces = $400 \div 20 = 20$

Summative Assessment-1 (Lesson 1 to 12)

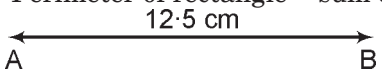
1. Add :
(a) 131736 (b) 170838 (c) 1254087 (d) 127352 (e) 220106 (f) 1591750

2. Subtract :
(a) 45576 (b) 54500 (c) 23816 (d) 151037 (e) 401209 (f) 421890

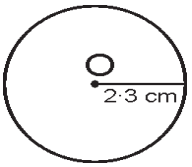
3. (a) 2,006 m*l* = 2 *l* 006 m*l* (b) 15 kg 250 g = 15250 g
(c) 6002 paise = 60 ₹ 02 Paise (d) 5024 m = 5 km 24 m
(e) 25 g 15 mg = 25015 mg

4. Four sides of rectangle = 4 cm, 2 cm, 4 cm and 2 cm
Perimeter of rectangle = sum of all sides = 4 cm + 2 cm + 4 cm + 2 cm = 12 cm

5.



6.



7. (a) Largest no. = 765421, Smallest no. = 124567
(b) Largest no. = 9875400, Smallest no. = 4005789
(c) Largest no. = 98643210, Smallest no. = 10234689.

8. Write the following number in International place value chart :
Do Yourself.

9. Fill in with ' > ' or ' < ' :
(a) XXI = XXI (b) XXIX < XXX (c) XLV > XLIV
(d) XXXVII < XLVI

10. Fill in with ' > ', ' < ' or = :
(a) 50 = L (b) 41 > XXVI (c) XLIV < 46
(d) XLIV < 49 (e) XXXI = 25 + 6 (f) 35 + 4 < XLVIII

11. Subtract :
(a) 2626462 – 162462 = 2464000 (b) 9532743 – 8562846= 969897
(c) 6321246 – 2847624 = 3473622 (d) 4782646 – 3646461 = 1136185

12. Add :

(a) 12380742 (b) 11063857 (c) 121507267 (d) 105319880
(e) 106663049 (f) 14042230

13. Solve the following :

(a) $26 \times 32 \times 10 = (26 \times 32) \times 10$
$= 832 \times 10 = 8320$

(b) $10 \times 20 \times 30 = (10 \times 20) \times 30$
$= 200 \times 30 = 6000$

(c) $40 \times 70 \times 8 = (40 \times 70) \times 8$
$= 2800 \times 8 = 22400$

(d) $700 \times 54 \times 70 = (700 \times 54) \times 70$
$= 37800 \times 70 = 2646000$

14. Find quotient and Remainder :

(a) 20 quotient, remainder 0 (b) quotient 426, remainder 2
(c) quotient 292, remainder 64 (d) quotient 16, remainder 450

15. Solve the following :

(a) $15 - 40 + 85 - 50 = (15 + 85) - 50 - 40$
$= 100 - 90 = 10$

(b) $30 + 28 - 70 + 40 = 30 + 28 + 40 - 70$
$= 98 - 70 = 28$

(c) $400 - 600 \div 30 \times 20 = 400 - 20 \times 20$
$= 400 - 400 = 0$

(d) $200 - 125 + 27 - 48 = 200 + 27 - 125 - 48$
$= 227 - 173 = 54$

16. Find the LCM by prime factorisation method :

(a) 16, 32

2	16
2	8
2	4
2	2
	1

2	32
2	16
2	8
2	4
2	2
	1

Prime factors of $16 = 2 \times 2 \times 2 \times 2$
Prime factors of $32 = 2 \times 2 \times 2 \times 2 \times 2$
$\therefore$ LCM of 16 and 32 $= 2 \times 2 \times 2 \times 2 \times 2 = 32$

(b) 4, 9

2	4
2	2
	1

3	9
3	3
	1

Prime factors of $4 = 2 \times 2$
Prime factors of $3 = 3 \times 9$
$\therefore$ LCM of 4 and 9
$= 2 \times 2 \times 3 \times 3 = 36$

(c) 9, 18

3	9
3	3
	1

2	18
3	9
3	3
	1

Prime factors of $9 = 3 \times 3$
Prime factors of $18 = 2 \times 3 \times 3$
$\therefore$ LCM of 9 and $18 = 2 \times 3 \times 3 = 18$

(d) 24, 48

2	24
2	12
2	6
3	3
	1

2	48
2	24
2	12
2	6
3	3
	1

Prime factors of $24 = 2 \times 2 \times 2 \times 3$
Prime factors of $48 = 2 \times 2 \times 2 \times 2 \times 3$
$\therefore$ LCM of 24 and 48
$= 2 \times 2 \times 2 \times 2 \times 3 = 48$

17. The LCM of numbers 15, 20 and 30 is the least no. of students

2	15, 20, 30
2	15, 10, 15
3	15, 5, 15
5	5, 5, 5
	1, 1, 1

$\therefore$ LCM $= 2 \times 2 \times 3 \times 5 = 60$
So the least no. of students = 60

18. The least no. of apples is the LCM of 10, 15 and 25

2	10, 15, 25
3	5, 15, 25
5	5, 5, 25
5	1, 1, 5
	1, 1, 1

$\therefore$ LCM = $2 \times 3 \times 5 \times 5 = 150$

So the least no. of apples = 150

19. The LCM of the groups of 12, 16 and 24 is the least no. of girls

2	12, 16, 24
2	6, 8, 12
2	3, 4, 6
2	3, 2, 3
3	3, 1, 3
	1, 1, 1

$\therefore$ LCM = $2 \times 2 \times 2 \times 2 \times 3 = 48$

So, the least no. of girls = 48

20. Find the factors of the given numbers :

(a) 20, 24

Factors of 20 = **1**, **2**, **4**, 5, 10, 20

Factors of 24 = **1**, **2**, 3, **4**, 6, 8, 12, 24

$\therefore$ Common factors = 1, 2, 4

(b) 12, 18

Factors of 12 = **1**, **2**, **3**, 4, **6**, 12

Factors of 18 = **1**, **2**, **3**, **6**, 9, 18

$\therefore$ Common factors = 1, 2, 3, 6

(c) 12, 36, 48

Factors of 12 = **1**, **2**, **3**, **4**, **6**, **12**

Factors of 36 = **1**, **2**, **3**, **4**, **6**, 9, **12**, 18, 36

Factors of 48 = **1**, **2**, **3**, **4**, **6**, 8, **12**, 24, 48

$\therefore$ Common factors = 1, 2, 3, 4, 6, 12

(d) 17, 51

Factors of 17 = **1**, 17

Factors of 51 = **1**, 3, **17**

$\therefore$ Common factors = 1, 17

21. We find required HCF of 24, 42 and 66.

So,

2	24
2	12
2	6
3	3
	1

2	42
3	21
7	7
	1

2	66
3	33
11	11
	1

Factors of 24 = **2** × 2 × 2 × **3**

Factors of 42 = **2** × **3** × 7

Factors of 66 = **2** × **3** × 11

$\therefore$ HCF of 24, 42 and 66 = $2 \times 3 = 6$

Hence HCF is even.

22. To find required largest no., we find HCF of 40 and 25.

So,

2	40
2	20
2	10
5	5
	1

5	25
5	5
	1

Factors of 40 = 2 × 2 × 2 × **5**

Factors of 25 = **5** × 5

$\therefore$ HCF of 40 and 25 = 5

So the largest no. = 5

23. To find largest no., we find HCF of 40 and 65.

So,

2	40
2	20
2	10
5	5
	1

5	65
13	13
	1

Factors of 40 = 2 × 2 × 2 × **5**

Factors of 13 = **5** × 13

$\therefore$ HCF of 40 and 65 = 5

So the largest no. = 5

24. Fill in the blanks :

(a) 3 (b) 35 (c) 12 (d) 9

25. Hamid bought toffes of = ₹ $\frac{5}{8}$, Sohan bought bananas of = ₹ $\frac{7}{8}$

Now, $\frac{5}{8} < \frac{7}{8}$ So, Sohan expenses more.

26. Quantity of water in a drum = $\frac{2}{15}\,l$, Quantity of water in a tank = $\frac{17}{15}\,l$

Now, $\frac{2}{15} < \frac{17}{15}$ Hence a tank has much water.

27. Seema frock needs cloth = $\frac{4}{6}$ m, Parul frock needs cloth = $\frac{5}{6}$ m

Now, $\frac{4}{6} < \frac{5}{6}$ Hence Parul frock needs more cloth.

28. Add the following :

(a) $2\frac{1}{3} + 5\frac{5}{3} = \frac{7}{3} + \frac{20}{3} = \frac{7+20}{3} = \frac{27}{3} = 9$

(b) $2\frac{4}{5} + 3\frac{2}{5} = \frac{14}{5} + \frac{17}{5} = \frac{14+17}{5} = \frac{31}{5} = 6\frac{1}{5}$

(c) $7\frac{1}{2} + 5\frac{1}{2} = \frac{15}{2} + \frac{11}{2} = \frac{15+11}{2} = \frac{26}{2} = 13$

(d) $5\frac{4}{6} + 7\frac{1}{6} = \frac{34}{6} + \frac{43}{6} = \frac{34+43}{6} = \frac{77}{6} = 12\frac{5}{6}$

(e) $1\frac{1}{3} + 1\frac{4}{9} = \frac{4}{3} + \frac{13}{9}$

$\therefore \quad \frac{12}{9} + \frac{13}{9} = \frac{12+13}{9} = \frac{25}{9} = 2\frac{7}{9}$

29. Subtract :

(a) $3 - \frac{2}{5} = \frac{3}{1} - \frac{2}{5}$

L.C.M. of 1 and 5 = 5

Now, $\frac{3\times5}{1\times5} = \frac{15}{5}$ and $\frac{2\times1}{5\times1} = \frac{2}{5}$

$\therefore \quad \frac{15}{5} - \frac{2}{5} = \frac{15-2}{5} = \frac{13}{5}$ or $2\frac{3}{5}$

(b) $5 - \frac{4}{6} = \frac{5}{1} - \frac{4}{6}$

L.C.M. of 1 and 6 = 6

Now, $\frac{5\times6}{1\times6} = \frac{30}{6}$ and $\frac{4\times1}{6\times1} = \frac{4}{6}$

$\therefore \quad \frac{30}{6} - \frac{4}{6} = \frac{30-4}{6} = \frac{26}{6} = \frac{13}{3} = 4\frac{1}{3}$

(c) $9 - \frac{1}{4}$

L.C.M. of 1 and 4 = 4

Now, $\frac{9\times4}{1\times4} = \frac{36}{4}$ and $\frac{1\times1}{4\times1} = \frac{1}{4}$

$\therefore \quad \frac{36}{4} - \frac{1}{4} = \frac{36-1}{4} = \frac{35}{4}$ or $8\frac{3}{4}$

(d) $4\frac{5}{6} - 3\frac{2}{6} = \frac{29}{6} - \frac{20}{6}$

$= \frac{29-20}{6} = \frac{9}{6} = \frac{3}{2}$

(e) $5\frac{1}{2} - 3\frac{1}{2} = \frac{11}{2} - \frac{7}{2} = \frac{11-7}{2} = \frac{4}{2} = 2$

30. Weight of ghee = $5\frac{5}{7}$ kg, Ghee used from them = $3\frac{2}{7}$ kg

Weight of left ghee = $5\frac{5}{7} - 3\frac{2}{7} = \frac{40}{7} - \frac{23}{7} = \frac{40-23}{7} = \frac{17}{7}$ or $2\frac{3}{7}$ kg

31. Distance walked by Kundan = $2\frac{5}{20}$ m, Distance walked by Anjali = $1\frac{2}{20}$ m

$\therefore \quad 2\frac{5}{20} \qquad 1\frac{2}{20} = \frac{45}{20} > \frac{22}{20}$

Hence Kundan walked more and

$\therefore \quad \frac{45}{20} - \frac{22}{20} = \frac{23}{20}$ or $1\frac{3}{20}$ m

32. Total weight of gas = 12 kg, Gas used = $5\frac{1}{2}$ kg

Left gas is cylinder = $\frac{12}{1} = \frac{11}{2} = 24 - \frac{11}{2}$

$= \frac{13}{2} = 6\frac{1}{2}$

13. METRIC SYSTEM

Exercise - 26

1. Express the following in kg and g :

(a) $473 \cdot 277$ kg = 473 kg + (0·277 kg)
= 473 kg + (0·277 × 1000) g
= 473 kg + 277 g = 473 kg 277 g

(b) $36 \cdot 047$ kg = 36 kg + (0·047 kg)
= 36 kg + (0·047 × 1000) g
= 36 kg + 047 g = 36 kg 47 g

(c) $49 \cdot 02$ kg
= 49 kg + (0·2 × 1000) g
= 49 kg + 20 g = 49 kg 20 g

(d) $9 \cdot 22$ kg
= 9 kg + (0·22 × 1000) g
= 9 kg + 220 g = 9 kg 220 g

2. Express the following in metres and centimetres :

(a) $66 \cdot 27$ m
= 66 m + (0·27) m
= 66 m + (0·27 × 100) cm
= 66 m + 27 cm = 66 m 27 cm

(b) $270 \cdot 20$ m
= 270 m + (0·20) m
= 270 m + (0·20 × 100) cm
= 270 m + 20 cm = 270 m 20 cm

(c) $4 \cdot 02$ m
= 4 m + (0·2) m
= 4 m + (0·2 × 100) cm
= 4 m + 2 cm = 4 m 2 cm

(d) $0 \cdot 46$ m
= 0 m + (0·46) m
= 0 m + (0·46 × 100) cm
= 0 m + 46 cm = 0 m 46 cm

3. Express the following in metres :

(a) $374 \cdot 03$ km
1 km = 1000 m
374·03 km = 374·03 × 1000 m
= 374030·00 m
= 374030 m

(b) $8 \cdot 49$ dcm
1 dcm = $\frac{1}{10}$ m
8·49 dcm = $\frac{8 \cdot 49}{10}$ m
= 0·849 m

(c) $482 \cdot 202$ dm
1 dm = $\frac{1}{10}$ m
482·202 dm = $\frac{482 \cdot 202}{10}$ m
= 48·2202 m

(d) $0 \cdot 008$ km
1 km = 1000 m
0·008 km = 0·008 × 1000
= 8·000 m = 8 m

(e) $349 \cdot 22$ mm
1 mm = $\frac{1}{1000}$ m
349·22 mm = $\frac{349 \cdot 22}{1000}$ m
= 0·34922 m

(f) $4 \cdot 278$ hm
1 hm = 100 m
4·278 hm = 4·278×100 m
= 427·800 m = 427·8 m

4. Express the following in kg :

(a) $0 \cdot 236$ gm
1 g = $\frac{1}{1000}$ kg
0·236 g = $\frac{0 \cdot 236}{1000}$ kg
= 0·000236 kg

(b) $0 \cdot 125$ hg
1 hg = $\frac{1}{10}$ kg
0·125 hg = $\frac{0 \cdot 125}{10}$ kg
= 0·0125 kg

(c) $469 \cdot 340$ cg
1 cg = $\frac{1}{10000}$ kg
469·340 cg = $\frac{469 \cdot 340}{100000}$
= 0·00469340 kg

(d) $0 \cdot 02$ hg
1 hg = $\frac{1}{10}$ kg
0·02 hg = $\frac{0 \cdot 02}{10}$ kg
= 0·002 kg

(e) 47345 dg
1 dg = $\frac{1}{10000}$ kg
47345 dg = $\frac{47345}{10000}$ kg
= 4·7345 kg

(f) $72 \cdot 47$ dcg
1 dcg = $\frac{1}{100}$ kg
72·47 dcg = $\frac{72 \cdot 47}{100}$ kg
= 0·7247 kg

5. Express the following in gm :

(a) $7 \cdot 34$ kg
1 kg = 1000 g
7·34 kg = 7·34 × 1000 g

(b) 5493 mg
1 mg = $\frac{1}{1000}$ g
5493 mg = $\frac{5493}{1000}$ g

(c) $35 \cdot 22$ hg
1 hg = 100 g
35·22 hg = 35·22 ×100 g

= 7340·00 g

(d) 45732·2 cg

$1 \text{ cg} = \frac{1}{100} \text{ g}$

$45732{\cdot}2 \text{ cg} = \frac{45732{\cdot}2}{100} \text{ g}$

= 457·322 g

= 5·493 g

(e) 475·36 mg

$1 \text{ mg} = \frac{1}{1000} \text{g}$

$475{\cdot}36 \text{ mg} = \frac{475{\cdot}36}{1000} \text{g}$

=0·47536 g

= 3522·00 g = 3522

(f) 354753 mg

$1 \text{ mg} = \frac{1}{1000} \text{ g}$

$354753 \text{ mg} = \frac{354753}{1000} \text{ g}$

= 354·753 g

6. Fill in the blanks :

(a) 90·37 kg = **90370** g.
(b) 43·064 hg = **4·3064** kg.
(c) 4980·6 cm = **0·49806** hm.
(d) 27·35 l = **2735** cl
(e) 3456·3 mg = **3·4563** g.
(f) 3456·23 mg = **0·00345623** kg.
(g) 9·48 hg = **94800** cg.
(h) 6·03 dl. = **0·603** *l*
(i) 6·03 dl = **60·3** cl.
(j) 570·60 cg. = **5·7060** g
(k) 4983 m = **4·983** km.
(l) 9857 mg. = **9·857** g
(m) 34985 cl = **3·4985** hl.
(n) 34985 cl. = **3498·5** dcl
(o) 4795 dg = **47·95** kg.
(p) 7·002 kg. = **700200** cg

7. Write the following in appropriate units :

(a) 7·49 dg
7 dg + 0·49 dg
= 7 dg + (0·49 × 100) mg
= 7 dg + 49 mg
= 7 dg 49 mg

(b) 37·426 m
= 37 m + (0·426) m
= 37 m + 0·426 × 1000 mm
= 37 m + 462 mm
= 37 m + 426 mm

(c) 9·53 dg
= 9 dg + 0·53 dg
= 9 dg + (0·53 × 100) mg
= 9 dg + 53 mg = 9 dg 53 mg

(d) 8·20 g
= 8 g + 0·20 g
= 8 g + (0·20 × 100) cg
= 8 g + 20 cg = 8 g 20 cg

(e) 4·273 g
= 4 g + 0·273 g
= 4 g + (0·273 × 1000) mg
= 4 g + 273 mg = 4 g 273 mg

(f) 4·273 kg
= 4 kg + 0·273 kg
= 4 kg + (0·273 × 1000) g
= 4 kg + 273 g = 4 kg 273 g

(g) 54·239 hg
= 54 hg + 0·239 hg
= 54 hg + (0·239 × 1000) dg
= 54 hg + 239 dg = 54 hg 239 dg

(h) 4·209 dcg
= 4 dcg + 0·209 dcg
= 4 dcg + (0·209 × 1000) cg
= 4 dcg + 209 cg
= 4 dcg 209 cg

8. Which is greater :

(a) $\frac{8}{10}$ or 0·08
0·8 > 0·08
∴ $\frac{8}{10}$ is greater

(b) $\frac{8}{100}$ or 0·8
0·08 < 0·8
∴ $\frac{8}{100}$ is greater

(c) $\frac{35}{10}$ or 0·35
3·5 > 0 · 35
∴ $\frac{35}{10}$ is greater

(d) $\frac{223}{100}$ or 22·3
2·23 < 22·3
∴ 22·3 is greater

(e) $\frac{223}{100}$ or 0·223
2·23 < 0·223
∴ $\frac{223}{100}$ is greater

(f) $\frac{80}{100}$ or 0·08
0·80 > 0 · 08
∴ 0·8 is greater

(g) $\frac{800}{1000}$ or 0·08
0·800 > 0·08
∴ $\frac{800}{1000}$ is greater

(h) $\frac{80}{1000}$ or 0·008
0·08 > 0·008
∴ $\frac{80}{1000}$ is greater

9. Write true or false for the following :
(a) false (b) false (c) true (d) false (e) false (f) false
(g) true (h) true.

Exercise - 27

1. Write the following in the place-value chart and then add. If any place is left empty, fill it by zero :
(a) 645 km 174 m (b) 143 kg 204 g (c) 924 kg 113 g (d) 95 kg 15 g (e) 136 l 92 cl
(f) 394 kl 226 l (g) 117 g 86 cg (h) 300 kg 550 g (i) 528 m 07 cm
(j) 91 kg 384 gm

2. Subtract the following :
(a) 14 kg 124 g (b) 155 hg 855 g (c) 10 g 64 cg (d) 137 g 812 mg
(e) 869 km 895 m (f) 16 km 111 m (g) 27 l 01 cl (h) 29 m 29 cm
(i) 760 l 310 ml (j) 108 g 084 mg.

Exercise - 28

Multiply the following :

1. 205 kg 982 g **2.** 468 kg 828 g **3.** 884 g 856 mg
4. 24 kg 263 g 798 mg **5.** 2581 km 920 m **6.** 1396 km 485 m
7. 7 m 711 m 91 cm **8.** 204 m 358 mm **9.** 3 km 330 m 84 cm
10. 1645 kl 625 *l* **11.** 8859 *l* 75 ml **12.** 900 g 140 mg.

Exercise - 29

Divide the following :

1. 4 m 96 cm **2.** 9 km 804 m **3.** 521 g **4.** 2 kl 19 *l*
5. 12 kl 6 *l* **6.** 10 m 32 mm **7.** 1 km 514 m, R = 43 m **8.** 6 *l* 29 cl
9. 7 *l* 38 cl, R = 6 *l* **10.** 2 kg 72 g 7 cg.

Exercise - 30

1. Total length of ribbon = 23 m 32 cm, No. of equal pieces = 6
Length of each piece= 23 m 32 cm ÷ 6 = 3 m 88 cm
Hence, each girl share 3 m 88 cm and 4 cm will be left over.

2. Length of park = 12 m 25 cm, Breadth of park = 8 m 35 cm
Distance covered in one round = 2 (*l* + b) = 2 (12 m 25 cm + 8 m 35 cm) = 2 (20 m 60 cm) = 41 m 20 cm
∴ Total distance covered in 14 times round = 14 × (41 m 20 cm) = 576 m 80 cm

3. Quantity of petrol in jar = 3·264 *l*, Petrol was used = 0·84 *l*
∴ Left petrol in jar = 3·264 *l* – 0·840 *l* = 2 ·424 *l*

4. No. of men = 400, No. of women = 390
Total no. of persons = 400 + 390 = 790
Each person is given sugar = 2·30 kg
790 persons will have given sugar = 790 × 2·30 kg = 1817 kg

5. Total length of silk ribbon = 75 m, No. of each pices = 10
Length of each piece = 75 m ÷ 10 = 7·5 m
Total length of cotton ribbon = 124 m, No. of equal pieces = 16
Length of each piece = 124 ÷ 16 m = 7·75 m
So length of cotton piece as 0·25 m longer and 7·75 m – 7·50 m = 0·25 m

6. Total length of a ribbon = 75 m, Length of sold ribbon = 10 m 52 cm
∴ Remaining part = 75 m 00 cm – 10 m 52 cm = 64 m 48 cm
No. of equal parts = 8
Length of each part = 64 m 48 cm ÷ 8 = 806

∴ Length of each part = 8 m 6 cm

7. No. of posts are on road = 1 km ÷ 10·75 m = 1000 m ÷ 10·75 m
= (100000 ÷ 1075) = 93·02 ≈ 93 posts (Approx.)

8. Weight of 10 rice packets = 4400 g, Weight of 1 rice packet = 4400 ÷ 10
∴ Weight of 1 packet of rice is 440 g.

9. Distance travelled in a litre of petrol = 45 km
Distance travelled in 15 litres of petrol = 45 × 15 km = 675 km
Hence , Scooter can go 675 km in 15 litres of petrol.

10. Weight of a tin of oil = 16 kg 500 g
Weight of 12 tins of oil = 12 × 16 kg 500 g = 198 kg
∴ The weight of 12 tins of oil is 198 kg.

11. Total weight of biscuits = 46 g
∵ Youngest get 2 g more than other, so now weight of biscuits = 46 – 2 = 44 g
No. of boys = 4
∴ Each boy get = 44 ÷ 4 g = 11 g
∴ Quantity of biscuits that each boy get is 11 g and younger get 11 g + 2 g = 13 g.

12. No. of posts erected between two places = 3 km 456 m ÷ 12 m = (3000 m + 456 m) ÷ 12 m
= 3456 m ÷ 12m = 288 posts.

13. $\frac{1}{2}$ kg of gas used in = 1 day

1 kg of gas used in = $1 \div \frac{1}{2}$ = 2 days

15 kg of gas used in = 2 × 15 = 30 days

14. Write :
(i) 1 quintal 50 kg = 100 kg + 50 kg = 150 kg
(ii) 6·234 quintal = 6·234 × 100 kg = 623·400 kg = 623·4 kg
(iii) 117 kg 450 g = (100 + 17) kg + 450 g
= 100 kg + (17 kg + 450 g) = 1 quintal + (17·450 kg) = 1 quintal 17·45 kg
(iv) 1 quintal 5 kg = 100 kg + 5 kg = 105 kg

14. Rupees-Paise

Exercise - 31

1. 6715·50 **2.** 126·50 **3.** 876·25 **4.** 2·343 **5.** 0·6

6. Cost of one kg of wheat = ₹ 13·75
Cost of 140 kg of wheat = ₹ 13·75 × 140 = ₹ 1925
Hence cost of 140 kg of wheat is ₹ 1925.

7. Cost of 20 umbrellas = ₹ 587·20
Cost of an umbrella = 587·20 ÷ 20 = 29·36
Hence, cost of 1 umbrella is ₹ 29·36.

8. The average monthly income = ₹ 1025·50
Annual income = 1025·50 × 12 = 12306·00
Hence the annual income of man is ₹ 12306.

9. Product of two numbers = 1758·30
One of number is = 20
The second number = 1758·30 ÷ 20 = 87·915
Hence the second no. is 87·915.

15. UNITARY METHOD

Exercise - 32

1. ∵ Cost of 20 m tape = ₹ 90
∴ Cost of 1 m tape = 90 ÷ 20 = ₹ 4·5
∴ Cost of 6 m tape = ₹ 4·5 × 6 = ₹ 27·0

2. ∵ Cost of 5 tables = ₹ 25
∵ Cost of 1 table = 25 ÷ 5 = ₹ 5
∴ Cost of 8 tables = 5 × 8 = ₹ 40

3. ∵ Cost of one dozen oranges = ₹ 60
∴ Cost of an orange = 60 ÷ 12 = ₹ 5
∴ Cost of 15 oranges = ₹ 15 × 5 = ₹ 75

4. ∵ No. of penciles in 4 packets = 120
∵ No. of pencils in a packet = 120 ÷ 4 = 30
∴ No. of pencils in 6 packets = 30 × 6 = 180

5. ∵ A bus moves in 30 hours = 2100 km
∴ A bus moves in an hour = 2100 ÷ 30 = 70
∴ Distance moved by bus in 24 hours = 24 × 70 = 1680 km

6. ∵ The income of 25 men = ₹ 50000
∵ The income of 1 man = 50000 ÷ 25 = = ₹ 2000
∴ The income of 10 men = ₹ 2000 × 10 = ₹ 20000

7. ∵ 15 drums contain oil = 1515 *l*
∴ A drum contain oil = 1515 ÷ 15 = 101 *l*
14
∴ quantity of oil in 10 drums = 101 × 10 = 1010 *l*

8. ∵ Weight of 14 wheat sacks = 1260 kg
∴ Weight of a wheat sack = 1260 ÷
= 90 kg
∴ Weight of 20 wheat sacks = 90 × 20 = 1800 kg

9. ∵ Cost of 12 pens = ₹ 132
∴ Cost of a pen = 132 ÷12 = 11
∴ Cost of 8 pens = 11 × 8 = ₹ 88

10. ∵ Annual rent of a shop = ₹ 8400
∴ Per month rent of 1 shop = 8400 ÷ 12 = 700
∴ Cost of 8 months = 700 × 8 = ₹ 5600

11. ∵ A labour earns in a month = ₹ 6000
∴ Labour earns in a day = 6000 ÷ 30 = ₹ 200
∴ Wages of seven days = 200 × 7 = ₹ l400

12. ∵ Cost of 16 books = ₹ 2560
∴ Cost of 1 books = 2560 ÷ 16 = ₹ 160
∴ Cost of 10 books = 160 × 10 = ₹ 1600

13. ∵ Cost of 5 kg of sugar = ₹ 180
∴ Cost of 1 kg of sugar = 180 ÷5 = ₹ 36
∴ Cost of 8 kg of sugar = 36 × 8 = ₹ 288

14. ∵ Cost of a dozen penciles = ₹ 240
∴ Cost of 1 pencil = 240 ÷ 12 = 20
∴ Cost of 5 pencils = 20 × 5 = ₹ 100

15. ∵ Distance covered in 5 hours = 40 km
∴ Distance covered in an hour = 40 ÷ 5 = 8 km
∴ Distance he will cove in 12 hours = 12 × 8 = 96 km

16. ∵ The weight of 24 sacks of flour = 1200 kg
∴ The weight of a sack of flour = 1200 ÷ 24 = 50 kg
∴ Weight of 14 sacks = 50 × 14 = 700 kg

17. ∵ Cost of 25 oranges = ₹ 125
∴ Cost of an orange = 125 ÷25 = ₹ 5
∴ Cost of one dozen oranges = 5 × 12 = ₹ 60

18. ∵ Distance covered by train in 8 hours = 560 km
∴ Distance covered by in an hour = 560 ÷ 8 = 70 km
∴ Distance covered in 5 hours = 70 × 5 = 350 km

19. ∵ Cost of 7 m cloth = ₹ 154
∴ Cost of 1 m cloth = 154 ÷7 = ₹ 22
∴ Cost of 12 m cloth = 22 × 12 = ₹ 264

20. ∵ 24 horses eat grains = 192 kg
∴ 1 horse eats grains = 192 ÷ 24 = 8 kg
∴ Quantity of grains for 40 horses = 40 × 8 = 320 kg

16. PROFIT AND LOSS

Exercise - 33

1. A shopkeeper bought and sold following items. Find his profit or loss :

	Name of articles	C.P. (in ₹)	S.P. (in ₹)	Profit (in ₹)	Loss (in ₹)
(a)	Radio	625·00	710·15	(S.P. > C.P.) = Profit Profit = (S.P. – C.P.) = ₹ (710·15 – 625·00) = ₹ 85·15	
(b)	Fan	2877·00	2760·00		(C.P. > S.P.) = Loss ∴ Loss = C.P. – S.P. = ₹ (2877·00 – 2760·00) = ₹ 117·00
(c)	Cooler	5875·00	6500·00	(S.P. > C.P.) = Profit Profit = S.P. – C.P. = ₹ (6500·00 – 5875·00) = ₹ 625·00	
(d)	Mixer	5765·00	7500·00	(S.P. > C.P.) = Profit ∴ Profit = S.P. – C.P. = ₹ (7500·00 – 5765·00) = ₹ 1735	
(e)	Double Bed	9756·50	10000·00	(S.P. > C.P.) = Profit ∴ Profit = S.P. – C.P. = ₹ (10000·00 – 9756·50) = ₹ 243·50	
(f)	Heater	312·60	300·50		(C.P. > S.P.) = Loss ∴ Loss = C.P. – S.P. = ₹ (312·60 – 300·50) = ₹ 12·10

2. Find Profit or Loss% :

	Name of articles	C.P. (in ₹)	S.P. (in ₹)	Profit/Loss (in ₹)	Profit/Loss%
(a)	Apple	4·00	5·00	Here S.P. > C.P. So, Profit = S.P. – C.P. = ₹ (5·00 – 4·00) = ₹ 1·00	Profit % = $\frac{\text{Profit}}{\text{C.P.}} \times 100 = 100 \times \frac{1}{4}$ = 25%
(b)	Banana	15·00	12·00	Here C.P. > S.P. So, Loss = C.P. – S.P. = ₹ (15 – 12) = ₹ 3	Loss % = = $\frac{\text{Loss}}{\text{C. P.}} \times 100 = \frac{3}{15} \times 100$ = 20%

(c)	Mango	50·00	60·00	Here S.P. > C.P. So, Profit = S.P. – C.P. = ₹ (60 – 50) = ₹ 10	Profit % = $\frac{\text{Profit}}{\text{C. P.}} \times 100 = 100 \times \frac{10}{50}$ = 20%
(d)	Orange	12·00	14·00	Here S.P. > C.P. So, Profit = S.P. – C.P. = ₹ (14 – 12) = ₹ 2	Profit % = $\frac{\text{Profit}}{\text{C. P.}} \times 100 = 100 \times \frac{2}{12} =$ $\frac{200}{12} = 16{\cdot}66\%$
(e)	Tomato	10·00	11·00	Here S.P. > C.P. So, Profit = S.P. – C.P. = ₹ (11 – 10) = ₹ 1	Profit % = $\frac{\text{Profit}}{\text{C. P.}} \times 100 = 100 \times \frac{1}{10}$ = 10%
(f)	Onion	30·00	35·00	Here S.P. > C.P. So, Profit = S.P. – C.P. = ₹ (35·00 – 30·00) = ₹ 5	Profit % = $\frac{\text{Profit}}{\text{C. P.}} \times 100 = 100 \times \frac{5}{30}$ $= \frac{500}{30} = 16{\cdot}66\%$
(g)	Litchi	3·00	4·00	Here S.P. > C.P. So, Profit = S.P. – C.P. = ₹ (4·00 – 3·00) = ₹ 1·00	Profit % = $\frac{\text{Profit}}{\text{C. P.}} \times 100 = 100 \times \frac{1}{3}$ $= \frac{100}{3} = 33{\cdot}33\%$
(h)	Grapes	22·00	29·00	Here S.P. > C.P. So, Profit = S.P. – C.P. = ₹ (29·00 – 22·00) = ₹ 7	Profit % = $\frac{\text{Profit}}{\text{C. P.}} \times 100 = 100 \times \frac{7}{22}$ $= \frac{700}{22} = 31{\cdot}81\%$

3. Find S.P. :

	Name of articles	**C.P. (in ₹)**	**Profit (in ₹)**	**Loss (in ₹)**	**S.P. (in ₹)**
(a)	Bread	17·50	2·00		S.P. = Profit + C.P. = ₹ (2·00 + 17·50) = ₹ 19·50
(b)	Biscuits	15·50	4·50		S.P. = Profit + C.P. = ₹ (4·50 + 15·50) = ₹ 20·00
(c)	Carromboard	76·00		15·00	S.P. = C.P. – Loss = ₹ (76 – 15) = ₹ 61
(d)	Ludo	25·50		2·50	S.P. = C.P. – Loss = ₹ (25·50 – 2 ·50) = ₹ 23·00
(e)	Chocolate	72·00	3·75		S.P. = Profit + C.P. = ₹ (3·75 + 72·00) = ₹ 75·75
(f)	Toffees	42·75	5·20		S.P. = Profit + C.P. = ₹ (5·20 + 42·75) = ₹ 47·95

4. Find C.P. :

	Name of articles	S.P. (in ₹)	Loss (in ₹)	Profit (in ₹)	C.P. (in ₹)
(a)	Fevicol	40·20	7·50		C.P. = Loss + S.P. = ₹ (7·50 + 40·20) = ₹ 47·70
(b)	Colour	25·20	5·15		C.P. = Loss + S.P. = ₹ (5·15 + 25·20) = ₹ 30·35
(c)	Ink	33·20		2·50	C.P. = S.P. – Profit = ₹ (33·20 – 2·50) = ₹ 30·70
(d)	Poster	22·25		1·25	C.P. = S.P. – Profit = ₹ (22·25 – 1·25) = ₹ 21·00
(e)	Sticker	12·50	2·75		C.P. = Loss + S.P. = ₹ (2·75 + 12·50) = ₹ 15·25
(f)	Gum	15·75	2·25		C.P. = Loss + S.P. = ₹ (2·25 + 15·75) = ₹ 18·00
(g)	Sauce	35·50		4·40	C.P. = S.P. – Profit = ₹ (35·50 – 4·40) = ₹ 31·10

Exercise - 34

1. C.P. of Stone = ₹ 45
S.P. of Stone = ₹ 25

Here, C.P. > S.P.

So, Loss = C.P. – S.P. = ₹ (45 – 25) = ₹ 20

$$\text{Loss \%} = \frac{\text{Loss}}{\text{C.P.}} \times 100$$

$$= \frac{20}{45} \times 100 = \frac{2000}{45} = 44 \cdot 44\%$$

2. C.P. of oil tine = ₹ 450

$$\text{Profit} = \frac{1}{2} \times \text{C.P.} = \frac{1}{2} \times 450 = ₹\ 225$$

$$\text{Profit \%} = \frac{\text{Profit}}{\text{C.P.}} \times 100 = \frac{225}{450} \times 100 = 50\%$$

3. C.P. of a thing = ₹ 350
S.P. of a thing = ₹ 280
Here, C.P. > S.P.
So, Loss = C.P. – S.P. = ₹ (350 – 280)
= ₹ 70

$$\text{Loss \%} = \frac{\text{Loss}}{\text{C.P.}} \times 100 = \frac{70}{350} \times 100 = 20\%$$

4. Cost Price = ₹ 100
Selling Price = ₹ 75
Here, C.P. > S.P.
So Loss = C.P. – S.P. = ₹ (100 – 75) = ₹ 25

$$\text{Loss \%} = \frac{\text{Loss}}{\text{C.P.}} \times 100 = \frac{25}{100} \times 100 = 25\%$$

5. C.P. of watch = ₹ 80
Expenses on watch = ₹ 10
∴ Total C.P. = (80 + 10) = ₹ 90
S.P. of watch = ₹ 117
Here, S.P. > C.P.
So, profit = S.P. – C.P. = (117 – 90) = ₹ 27

$$\text{Profit \%} = \frac{\text{Profit}}{\text{C.P.}} \times 100 = \frac{27}{90} \times 100 = 30\%$$

6. C.P. of Sofa = ₹ 1120
Expense on transportation = ₹ 50
∴ Total C.P. = ₹ (1120 + 50) = ₹ 1170
S.P. of Sofa = ₹ 1350
Here, S.P. > C.P.
So, profit = S.P. – C.P. = (1350 – 1120)
= ₹ 230

$$\text{Profit \%} = \frac{\text{Profit}}{\text{C.P.}} \times 100 = \frac{230}{1170} \times 100$$

$$= \frac{23000}{1170} = 19 \cdot 65\%$$

7. Loss % = 10 %

S.P. = ₹ 135, C.P. = ?

$$\text{C.P.} = \left[\frac{100}{(100 - \text{Loss}\%)} \times \text{S.P.}\right]$$

$$\text{C.P.} = \frac{100}{(100-10)} \times 135$$

$$= \frac{100}{90} \times 135 = \frac{1350}{9} = ₹\ 150$$

Hence the cost price is ₹ 150.

8. C.P. of an article = ₹ 950

S.P. of an article = ₹ 760

Here, C.P. > S.P.

So, Loss = C.P. – S.P.

$= ₹\ (950 - 760) = ₹\ 190$

$$\text{Loss \%} = \frac{\text{Loss}}{\text{C.P.}} \times 100$$

$$= \frac{190}{950} \times 100 = \frac{19000}{950} = 20\%$$

17. AVERAGE

Exercise - 35

1. Complete the given table :

	Cost, weigh and capacity of articles	Total aggregate	Total number	Average $= \frac{\text{Total agregates}}{\text{Total no.}}$
(a)	145, 47, 45	145 + 47 + 45 = 237	3	$= \frac{237}{3} = 79$
(b)	₹ 50, ₹ 79, ₹ 85, ₹ 90	= ₹ (50 + 79 + 85 + 90) = ₹ 304	4	$= \frac{304}{4} = ₹\ 76$
(c)	9, 15, 14, 17, 21, 12, 17	= 9 + 15 + 14 + 17 + 21 + 12 + 17 = 105	7	$= \frac{105}{7} = 15$
(d)	14, 6, 35, 42, 50	= 14 + 6 + 35 + 42 + 50 = 147	5	$= \frac{147}{5} = 29 \cdot 4$
(e)	108 l, 205 l, 111 l	= 108 + 205 + 111 = 424 l	3	$= \frac{424}{3} = 141 \cdot 33$
(f)	90 km, 75 km, 197 km, 143 km	= 90 + 75 + 197 + 143 = 505 km	4	$= \frac{505}{4} = 126 \cdot 25$
(g)	21 cm, 36 cm, 35 cm	= (21 + 36 + 35) cm = 92 cm	3	$= \frac{92}{3} = 30 \cdot 66$
(h)	41 kg, 37 kg, 92 kg	= 41 + 37 + 92 = 170	3	$= \frac{170}{3} = 56 \cdot 66$

2. Finding average, answer the following questions :

	Name of Students	Hindi (Obtained Mark)	English (Obtained Mark)	Maths (Obtained Mark)	Total	Average
(a)	Ravi	45	90	65	45 + 90 + 65 =200	$= \frac{200}{3} = 66{\cdot}66$
(b)	Mahesh	62	80	45	62 + 80 + 45 = 187	$= \frac{187}{3} = 62{\cdot}33$
(c)	Dinesh	35	36	92	35 + 36 + 92 = 163	$= \frac{163}{3} = 54{\cdot}33$
(d)	Pawan	46	55	60	46 + 55 + 60 = 161	$= \frac{161}{3} = 53{\cdot}66$
(e)	Kishor	80	85	96	80 + 85 + 96 = 261	$= \frac{261}{3} = 87$

(i) Pawan's average is less.
(ii) Kishor's average is more.
(iii) Mahesh stands on the third position.

3. Fill in the blanks :

(a) Average $= \frac{\text{Sum of Numbers}}{\text{Total no.}} = \frac{1+3+9+7}{4} = \frac{20}{4} = 5$

(b) Average $= \frac{\text{Sum of Numbers}}{\text{Total no.}} = \frac{6+9+12+18}{4} = \frac{45}{4} = 11{\cdot}25$

(c) Average $= \frac{\text{Sum of Numbers}}{\text{Total no.}} = \frac{210+110}{2} = \frac{320}{2} = 160$

(d) First 5 even no. = 2, 4, 6, 8, 10

$\therefore$ Average $= \frac{\text{Sum of even numbers}}{\text{Total no.}} = \frac{2+4+6+8+10}{5} = \frac{30}{5} = 6$

(e) First 5 odd no. = 1, 3, 5, 7, 9

$\therefore$ Average $= \frac{\text{Sum of odd numbers}}{\text{Total no.}} = \frac{1+3+5+7+9}{5} = \frac{25}{5} = 5$

Exercise - 36

1. $\therefore$ Average Sale $= \frac{\text{Total Money}}{\text{No. of days}} = \frac{8680}{7} = ₹\ 1240$

2. $\therefore$ Average run $= \frac{\text{Total of runs}}{\text{No. of matches}} = \frac{8+15+0+125}{4} = \frac{148}{4} = 37$

3. $\therefore$ Average groups $= \frac{\text{Total of ages}}{\text{No. of girls}} = \frac{18+16+22}{3} = \frac{56}{3} = 18{\cdot}66$

4. $\therefore$ Average of fare $= \frac{\text{Total of rail fare}}{\text{No. of places}} = \frac{15+17+19+50}{4} = \frac{101}{4} = 25{\cdot}25$

5. $\therefore$ Average rainfall $= \frac{\text{Total of rainfalls}}{\text{No. of months}} = \frac{(2{\cdot}8+5{\cdot}5+5{\cdot}8+12{\cdot}5+4{\cdot}4)}{5} = \frac{31{\cdot}0}{5} = 6{\cdot}2\,\text{cm}$

18. TIME

Exercise - 37

1. Change in minutes :

(a) 15 hours

$\because$ 1 hour = 60 minutes

(b) 13 hours 20 minutes

$\because$ 1 hour = 60 minutes

$\therefore$ 15 hours = 15 × 60 = 900 min

$\therefore$ 13 hours = 13 × 60 = 780 minutes

So 13 hours 20 minutes

= (780 + 20) minutes = 800 minutes

(c) 8 hours 40 minutes

$\because$ 1 hour = 60 minutes

$\therefore$ 8 hours = 8 × 60 = 480 min

So 8 hours 40 minutes

= (480 + 40) minutes = 520 minutes

(d) 7 hours 15 minutes

$\because$ 1 hour = 60 minutes

$\therefore$ 7 hours = 7 × 60 = 420 minutes

So 7 hours 15 minutes

= (420 + 15) minutes = 435 minutes

2. Change in hours-minutes :

(a) 130 minutes

$\because$ 60 minutes = 1 hour

$\therefore$ 1 minutes = $\frac{1}{60}$ hour

So 130 minutes = $\frac{130}{60}$

= 2 hours 10 minutes = 2·10

(b) 95 minutes

$\because$ 60 minutes = 1 hour

$\therefore$ 1 minutes = $\frac{1}{60}$ hour

So 95 minutes = $\frac{95}{60}$ = 1 hour 35 minutes

= 1·35

(c) 185 minutes

$\because$ 60 minutes = 1 hour

$\therefore$ 1 minutes = $\frac{1}{60}$ hour

So 185 minutes = $\frac{185}{60}$

= 3 hours 5 minutes = 3·5

(d) 220 minutes

$\because$ 60 minutes = 1 hour

$\therefore$ 1 minutes = $\frac{1}{60}$ hour

So 220 minutes = $\frac{220}{60}$ = 3 hours 40 minutes

= 3·40

3. Addition :

(a) 16 hours 15 min 55 sec (b) 13 hours 51 min 40 sec

4. Subtract :

(a) 3 hours 20 min 8 sec (b) 1 hour 44 min 30 sec

5. Ravi reads in school = 4 hours 40 minutes

Ravi reads at home = 2 hours 30 minutes

$\therefore$ Total time study by him = 4 hours 40 minutes + 2 hours 30 minutes

= 7 hours 10 minutes

$\therefore$ Total time = 7 hours 10 minutes = 7·10 hours

6. A man travelled by train = 4 hours 50 minutes

A man travelled by bus = 3 hours 20 minutes

$\therefore$ He travelled by train more than by bus = 4 hours 50 min – 3 hours 20 min

= 1 hours 30 min

$\therefore$ Required time is = 1 h 30 minutes = 1·30 hours

7. A film starts at time = 3·10 p.m.

Film ends at time = 2 hours 45 min after start

$\therefore$ Ending time of film = 3 hours 10 minutes + 2 hours 45 minutes = 5 hours 55 min

$\therefore$ Time of ending is 5·55 hours.

8. An institution starts at time = 7 : 30

It continues till at time = 3 hrs 40 m

$\therefore$ Closing time = 7 hours 30 min + 3 hours 40 min = 11 hours 10 min

Hence closing time is 11 : 10 hrs.

9. Neha starts work at time = 8 : 15 a.m.

Neha ends work at time = 1 : 30 p.m. = 13·30 hours

So Neha's total working time = 13 hours 30 min – 8 hours 15 min = 5 hours 15 min

$\therefore$ Her total working time 5·15 hrs.

10. Megha reads on Monday = 1 : 30 hrs

Megha reads on Sunday = 2 : 45 hrs

$\therefore$ She reads on Monday than Tuesday = 2 hrs 45 min – 1 hrs 30 min = 1 hrs 15 min
$\therefore$ Time is 1·15 hrs.

Formative assessment-3 (Lesson 13 to 18)

1. Fill in the blanks :
(a) 90·37 kg = **90370** g.
(b) 43·064 hg = **4·3064** kg.
(c) 4980·6 cm = **0·49806** hm.
(d) 27·35 l = **2735** cl

2. (a) 205 kg 982 g (b) 468 kg 828 g (c) 884 g 856 mg

3. Product of two numbers = 1758·30
One of number is = 20
The second number = 1758·30 ÷ 20 = 87·915
Hence the second no. is 87·915.

4. Weight of 10 rice packets = 4400 g, Weight of 1 rice packet = 4400 ÷ 10
$\therefore$ Weight of 1 packet of rice is 440 g.

5. Distance travelled in a litre of petrol = 45 km
Distance travelled in 15 litres of petrol = 45 × 15 km = 675 km
Hence , Scooter can go 675 km in 15 litres of petrol.

6. $\because$ 15 drums contain oil = 1515 l
$\therefore$ A drum contain oil = 1515 ÷ 15 = 101 l
$\therefore$ quantity of oil in 10 drums = 101 × 10 = 1010 l

7. $\because$ Weight of 14 wheat sacks = 1260 kg
$\therefore$ Weight of a wheat sack = 1260 ÷ 14 = 90 kg
$\therefore$ Weight of 20 wheat sacks = 90 × 20 = 1800 kg

8. Cost Price = ₹ 100
Selling Price = ₹ 75
Here, C.P. > S.P.
So Loss = C.P. – S.P. = ₹ (100 – 75) = ₹ 25
Loss % = $\frac{\text{Loss}}{\text{C.P.}} \times 100 = \frac{25}{100} \times 100 = 25\%$

9. C.P. of watch = ₹ 80
Expenses on watch = ₹ 10
$\therefore$ Total C.P. = (80 + 10) = ₹ 90
S.P. of watch = ₹ 117
Here, S.P. > C.P.
So, profit = S.P. – C.P. = (117 – 90) = ₹ 27
Profit % = $\frac{\text{Profit}}{\text{C.P.}} \times 100 = \frac{27}{90} \times 100 = 30\%$

10. Weight of a tin of oil = 16 kg 500 g
Weight of 12 tins of oil = 12 × 16 kg 500 g = 198 kg
$\therefore$ The weight of 12 tins of oil is 198 kg.

11. Fill in the blanks :
(a) Average = $\frac{\text{Sum of Numbers}}{\text{Total no.}} = \frac{1+3+9+7}{4} = \frac{20}{4} = 5$
(b) Average = $\frac{\text{Sum of Numbers}}{\text{Total no.}} = \frac{6+9+12+18}{4} = \frac{45}{4} = 11{\cdot}25$
(c) Average = $\frac{\text{Sum of Numbers}}{\text{Total no.}} = \frac{210+110}{2} = \frac{320}{2} = 160$
(d) First 5 even no. = 2, 4, 6, 8, 10
$\therefore$ Average = $\frac{\text{Sum of even numbers}}{\text{Total no.}} = \frac{2+4+6+8+10}{5} = \frac{30}{5} = 6$

12. $\therefore$ Average groups = $\frac{\text{Total of ages}}{\text{No. of girls}} = \frac{18+16+22}{3} = \frac{56}{3} = 18{\cdot}66$

13. Change in minutes :
(a) 15 hours
$\because$ 1 hour = 60 minutes
$\therefore$ 15 hours = 15 × 60 = 900 min
(b) 13 hours 20 minutes
$\because$ 1 hour = 60 minutes
$\therefore$ 13 hours = 13 × 60 = 780 minutes
So 13 hours 20 minutes
= (780 + 20) minutes = 800 minutes

(c) 8 hours 40 minutes
$\because$ 1 hour = 60 minutes
$\therefore$ 8 hours = 8 × 60 = 480 min
So 8 hours 40 minutes
= (480 + 40) minutes = 520 minutes

(d) 7 hours 15 minutes
$\because$ 1 hour = 60 minutes
$\therefore$ 7 hours = 7 × 60 = 420 minutes
So 7 hours 15 minutes
= (420 + 15) minutes = 435 minutes

14. Ravi reads in school = 4 hours 40 minutes
Ravi reads at home = 2 hours 30 minutes
$\therefore$ Total time study by him = 4 hours 40 minutes + 2 hours 30 minutes
= 7 hours 10 minutes
$\therefore$ Total time = 7 hours 10 minutes = 7·10 hours

15. A man travelled by train = 4 hours 50 minutes
A man travelled by bus = 3 hours 20 minutes
$\therefore$ He travelled by train more than by bus = 4 hours 50 min – 3 hours 20 min
= 1 hours 30 min
$\therefore$ Required time is = 1 h 30 minutes = 1·30 hours

19. GEOMETRY

Exercise - 38

1. Measure the given line segments :
Ans. Each line segments measures 5·2 cm.

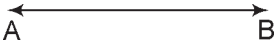
2. Construct line segments of the given lengths and name them :
(a) 3 cm 

(b) 9 cm 

(c) 2 cm 3 mm 

(d) 9 cm 5 mm 

(e) 2 cm 3 mm 

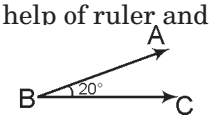
(f) 8 cm 4 mm 

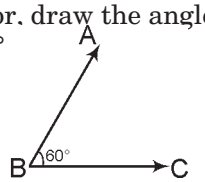
3. Sum of the measures of all sides = (1·9 + 1·9 + 1·9 + 1·9 + 1·9 + 1·9) = 11·4 cm

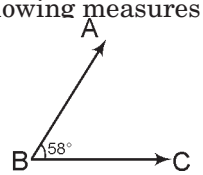
Exercise - 39

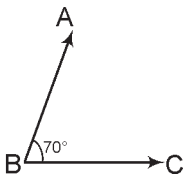
1. Name the vertex and the sides of each angle.
(a) Vertex = A, B, C, Sides = AB, BC
(b) Vertex = A, B, C, Sides = AB, BC
(c) Vertex = A, B, C, Sides = AB, BC
(d) Vertex = A, B, C, Sides = AB, BC

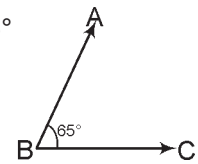
2. Name each angle in two ways :
(a) $\angle ABC, \angle CBA$ (b) $\angle ABC, \angle CBA$ (c) $\angle ABC, \angle CBA$ (d) $\angle ABC, \angle CBA$

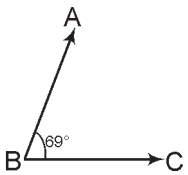
3. With the help of ruler and protractor, draw the angles of the following measures :
(a) 20° 

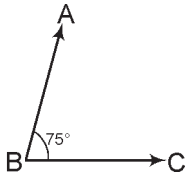
(b) 60° 

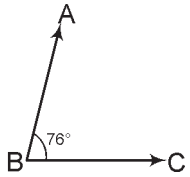
(c) 58° 

(d) 70° 

(e) 65° 

(f) 69° 

(g) 75° 

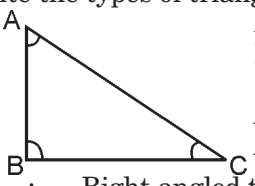
(h) 76° 

4. Write the type of each angle (acute, obtuse or right angle) :

(a) 65° = Which is less than 90°, So it is acute angle.
(b) 97° = Which is more than 90°, So it is obtuse angle.
(c) 91° = Which is more than 90°, So it is obtuse angle.
(d) 170° = Which is more than 90°, So it is obtuse angle.
(e) 165° = Which is more than 90°, So it is obtuse angle.
(f) 163° = Which is more than 90°, So it is obtuse angle.
(g) 135° = Which is more than 90°, So it is obtuse angle.
(h) 55° = Which is less than 90°, So it is acute angle.

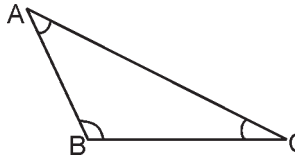
Exercise - 40

1. Measure all the sides and angles of the following triangles and write near the sides. Then write the types of triangles :

(a) 

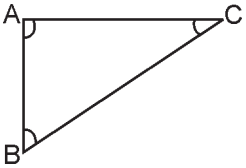
AB = 2·3 cm
BC = 3 cm
CA = 4·2 cm
∠ A = 55°, ∠ B = 90°,
∠ C = 35°

∴ Right angled triangle

(b) 

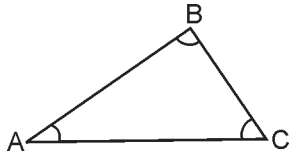
AB = 2·6 cm
BC = 3·5 cm
CA = 5·1 cm
∠ A = 40°,
∠ B = 115°,
∠ C = 25°

∴ Obtuse angled triangle

(c) 

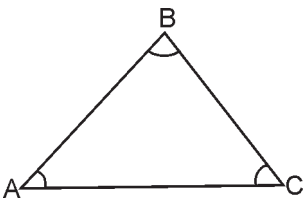
AB = 2·4 cm
BC = 3·5 cm
CA = 5·1 cm
∠ A = 40°, ∠ B = 115°,
∠ C = 25°

∴ Right angled triangle

(d) 

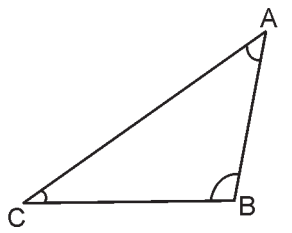
AB = 3·5 cm
BC = 2·3 cm
CA = 4·2 cm
∠ A = 35°,
∠ B = 90°,
∠ C = 55°

∴ Right angled triangle

(e) 

AB = 3·8 cm
BC = 3·4 cm
CA = 4·2 cm
∠ A = 45°,
∠ B = 80°,
∠ C = 55°

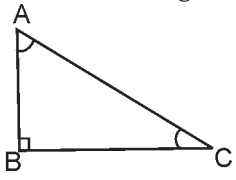
∴ Acute angled triangle

(f) 

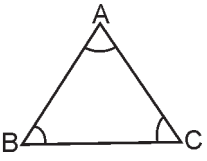
AB = 3·8 cm
BC = 4·6 cm
CA = 6·6 cm
∠ A = 45°,
∠ B = 100°,
∠ C = 35°

∴ Obtuse angled triangle

2. Measure all the angles of the following triangles and write near the vertex. Then write the types of the triangles :

(a) 

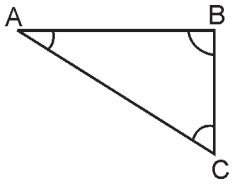
∠ A = 60°
∠ B = 90°
∠ C = 30°

(b) 

∠ A = 66°
∠ B = 57°
∠ C = 57°

∴ Right angled triangle

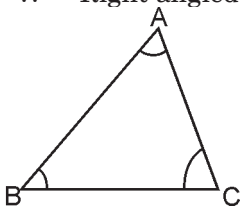
(c)



$\angle A = 30°$
$\angle B = 90°$
$\angle C = 60°$

∴ Right angled triangle

(e)

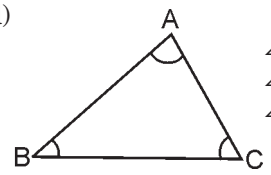


$\angle A = 60°$
$\angle B = 50°$
$\angle C = 70°$

∴ Actue angled triangle

∴ Acute angled triangle

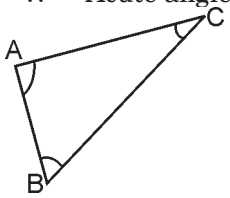
(d)



$\angle A = 80°$
$\angle B = 40°$
$\angle C = 60°$

∴ Acute angled triangle

(f)



$\angle A = 90°$
$\angle B = 60°$
$\angle C = 30°$

∴ Right angled triangle

Exercise - 41

1. Which of the following are quadrilaterals ?
(a) It has four sides so it is a quadrilateral.
(b) It has more than four sides so it is not a quadrilateral.
(c) It has more than sides so it is not a quadrilateral
(d) It has more than four sides so it is not a quadrilateral.
(e) It has four sides so it is a quadrilateral.
(f) It has more than four sides so it is not a quadrilateral.

2. Fill in the blanks :
(a) The number of line segments forming a rectangle is **four** .
(b) The number of vertex of a square is **four** .
(c) In a rectangle each angle is a **right angle (90°)** .
(d) In a square all the sides are **equal** .

3. See the figure and answer the following :
(a) Quadrilateral (b) AB, BC and BD

20. PERIMETER

Exercise - 42

1. Find the perimeter of each of the following figures :
(a) Perimeter of rectangle = $2\,(l + b)$
Length of rectangle = 7 cm
Breadth of rectangle = 5 cm
∴ Perimeter = $2(7 + 5) = 2 \times 12 = 24$ cm

(b) Perimeter of quadrilateral
= sum of all sides
$= (8 + 8 + 4 + 4)$ cm = 24 cm

(c) Perimeter of triangle = sum of all sides
$= (2 + 4 + 5)$ cm = 11 cm

(d) Side of square = 9 cm
∴ Perimeter of square = $4 \times$ side
$= 4 \times 9$ cm = 36 cm

2. Find the perimeter of the triangles, whose sides are :
(a) 6 cm, 7 cm and 8 cm
Perimeter of the triangle
= Sum of length of three sides
$= (6 + 7 + 8)$ cm = 21 cm

(b) 4 cm, 6 cm and 3 cm
Perimeter of the triangle
= Sum of length of three sides
$= (4 + 6 + 3)$ cm = 13 cm

(c) 9 cm, 4 cm and 7 cm
Perimeter of triangle = Sum of length of three sides = $(9+4+7)$ cm = 20 cm

3. Find the perimeter of a quadrilaterals having its sides :

(a) 4 cm, 6 cm, 3 cm and 2 cm
Perimeter of a quadrilaterals
= Sum of length of four sides
= $(4+6+3+2)$ cm = 15 cm

(b) 9 cm, 7 cm, 6 cm and 5 cm
Perimeter of a quadrilaterals
= Sum of length of four sides
= $(9+7+6+5)$ cm = 27 cm

4. Find the perimeter of the rectangles having :

(a) length = 10 cm, breadth = 6 cm
Perimeter of rectangle = $2(l+b) = 2(10+6) = 2\times16 = 32$ cm

(b) length = 8 cm, breadth = 5 cm
Perimeter of rectangle = $2(l+b) = 2(8+5) = 2\times13 = 26$ cm

(c) length = 7 cm, breadth = 5 cm
Perimeter of rectangle = $2(l+b) = 2(7+5) = 2\times12 = 24$ cm

(d) length = 6 cm, breadth = 4 cm
Perimeter of rectangle = $2(l+b) = 2(6+4) = 2\times10 = 20$ cm

5. Find the perimeter of the squares having its side :

(a) 2 cm
Side of square = 2 cm
∴ Perimeter of square = 4 × side
$= 4\times2 = 8$ cm

(b) 4 cm
Side of square = 4 cm
∴ Perimeter of square = 4 × side
$= 4\times4 = 16$ cm

Exercise - 43

1. Side of square picture = 12 cm
∴ Length of wooden rod = 4 × length of square picture = 4 × 12 = 48 cm
∴ Required length of wooden rod is 48 cm.

2. Length of blanket = 2 m, Breadth of blanket = 1 m
∴ Length of the border = 2 × (length + breadth) = 2 × (2 + 1) m = 2 × 3 m = 6 m
Hence the required length of the border is 6 m.

3. Side of square field = 15 m
∴ Length of the rope = 4 × side of square field = 4 × 15 m = 60 m
Hence the length of the rope is 60 m.

4. Side of square field = 240 m
Distance run by Asha in one round = 4 × side = 4 × 240 = $4\times240 = 960$ m
∴ Total distance run by Asha in four rounds = 960 × 4 = 3840 m
Now, Length of rectangular field = 275 m
Breadth of rectangular field = 170 m
Distance run by Meera in one round = = $2(l+b) = 2(275+170)$ m = $2\times445 = 890$ m
∴ Total distance run by Meera in four rounds = 890 × 4 = 3560 m
So, the difference run by them in four rounds = (3840 – 3560) m = 280 m
∴ Hence the difference is 280 m.

5. Length of field = 210 m, Breadth of field = 170 m
∴ Perimeter of field = $2(l+b) = 2(210+170)$ m = 2×380 m = 760 m
It has given that perimeter of square is equal to perimeter of rectangular field.
So, Perimeter of square = 760 m
4 × side = 760 m, Side = 760 m ÷ 4 = 190 m
Hence, the side of square field is 190 m.

6. The length of sides of a lawn of a quadrilateral are 175 m, 160 m, 150 m and 165 m
∴ Perimeter of quadrilateral lawn = sum of its four sides = (175 + 160 + 150 + 165) m
= 650 m

and, cost of erecting at ₹ 15 per meter = 650 × 15 = ₹ 9750
Hence, Length of wall = 650 m and required cost = ₹ 9750

7. Sides of triangular field are 210 m, 180 m and 230 m
∴ Required length of wire = Perimeter of triangular field = (210 + 180 + 230) m = 620 m
Hence, 620 m of wire is required to fence the field.

8. Length of swimming pool = 6 m
Breadth of swimming pool = 9 m
∴ Perimeter of pool = $2(l + b) = 2(6 + 9)$ m $= 2 \times 15$ m $= 30$ m
So, the required perimeter of swimming pool is 30 m.

9. Length of a field = 24 m
Breadth of a field = 15 m
So the perimeter of field = $2(l + b) = 2(24 + 15)$ m $= 2 \times 39$ m $= 78$ m
Hence, the required perimeter of field is 78 m.

Exercise - 44

1. Fill in the blanks :
(a) Radius of a circle is **half** its diameter.
(b) All radii of a circle are **equal**.
(c) The diameter is **twice** the radius.
(d) The longest chord of the circle is the **diameter** .
(e) A diameter always passes through **centre** of the circle.
(f) The distance of a point on the circle from the centre is called its **radius**.
(g) Any portion of the **circumference** of a circle is called an arc.
(h) The diameter divides the circle into two **semi-circles** .

2. Study the figure and fill in the blanks :
(a) The centre of the circle is **point *O***.
(b) **OA**, **OQ**, OP and **OB** are the radii of the circle.
(c) AB and PQ are the **diameters** of the circle.
(d) The chords of the circle are **AB**, **PQ** and **AQ**.

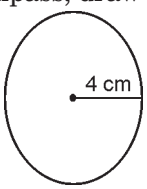
3. Find the radius of the circle whose diameters are :
(a) 6 cm
Diameter = 6 cm
∴ Radius $= \frac{\text{Diameter}}{2} = \frac{6}{2} = 3$ cm

(b) 5 cm
Diameter = 5 cm
∴ Radius $= \frac{\text{Diameter}}{2} = \frac{5}{2} = 2{\cdot}5$ cm

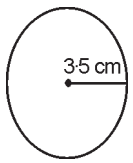
(c) 10 cm
Diameter = 10 cm
∴ Radius $= \frac{\text{Diameter}}{2} = \frac{10}{2} = 5$ cm

(d) 7 cm
Diameter = 7 cm
∴ Radius $= \frac{\text{Diameter}}{2} = \frac{7}{2} = 3{\cdot}5$ cm

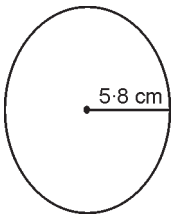
4. Using a compass, draw circles with the following radii :
(a) 4 cm



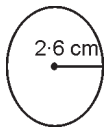
(b) 3·5 cm



(c) 5·8 cm



(d) 2·6 cm



5. The radius of a circle = 5·3 cm
Diameter = 2 × radius of circle = 2 × 5·3 = 10·6 cm

6. Define the following terms :

(a) Radius : Distance between centre and circumference is called radius of a circle. It is denoted by r. $\therefore \quad r = \frac{d}{2}$

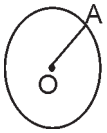
(b) Diameter : The line segment touches both sides circumference and passing through centre O, is called diameter of a circle. It is denoted by d. $\therefore \quad d = 2 \times r$.

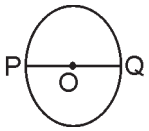
(c) Chord : A line segment whose end-points lay on a circle is called the chord of the circle. In the figure, AB, PQ and AQ are the chords of the circle.

(d) Circumference : The length of the boundary of the circle is called circumference. In other words, circumference is the perimeter of the circle. It is denoted by C.

$C = 2\pi r$ where, C = circumference, r = radius

7. Draw the following in a circle :

(a) Radius OA 

(b) Diameter POQ 

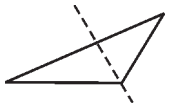
(c) Chord PQ 

22. SYMMETRY

Exercise - 45

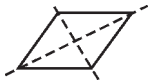
1. Look at the following shapes. Identify those are symmetrical.

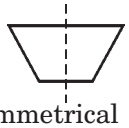
(a)  Symmetrical

(b)  Unsymmetrical

(c)  Symmetrical

(d)  Symmetrical

(e)  Symmetrical

(f)  Symmetrical

(g)  Symmetrical

(h)  Symmetrical

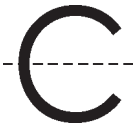
2. Among the letters printed below choose the ones that are symmetrical.

(a)  Symmetrical

(b)  Symmetrical

(c)  Symmetrical

(d)  Not Symmetrical

(e)  Symmetrical

(f)  Symmetrical

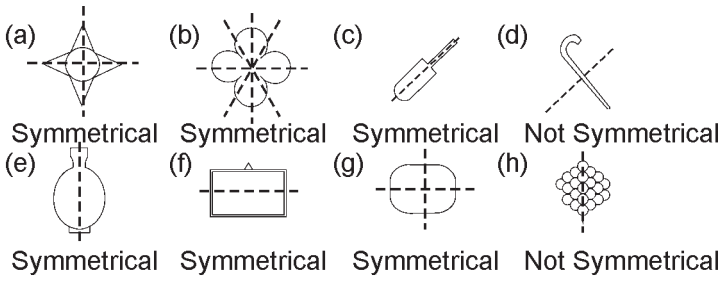
(g)  Not Symmetrical

(h)  Not Symmetrical

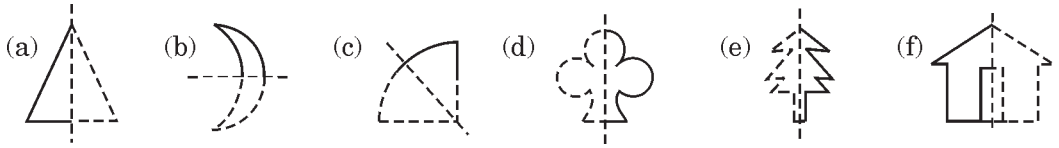
(i)  Symmetrical

(j)  Not Symmetrical

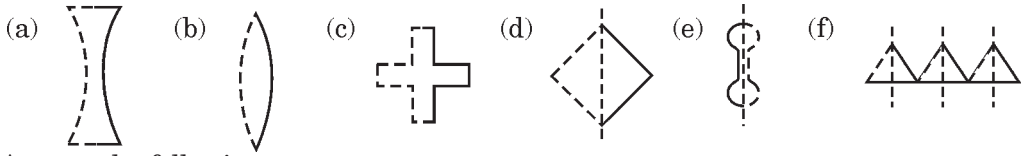
3. Identify the designs that are symmetrical.



4. Trace the shapes given below. For each, identify the lines of symmetry by paper-folding.



5. Trace the designs given below. For each, identify the line of symmetry by paper-folding.



6. Answer the following :

(a) It is one that has two halves which are the same in shape and size. If you fold a picture of a symmetrical object. One half will cover the other.
(b) Only one symmetrical line is in an isosceles triangle.
(c) There are 3 symmetrical lines in equilateral triangles.
(d) There are two symmetrical lines in a rectangle.
(e) There are 4 symmetrical lines in a square.
(f) Yes, A circle have five or more lines of symmetry.

23. PICTORIAL REPRESENTATION OF DATA

Exercise - 46

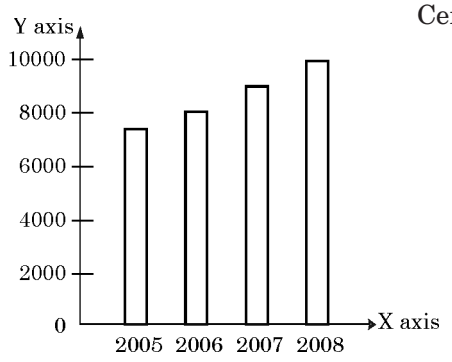
1. In a school, the number of students using various modes transport is shown in the given bar graphs :

Answer the following questions :

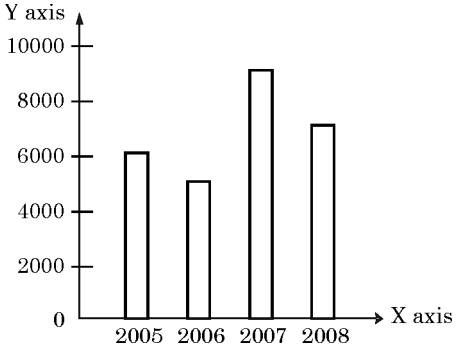
(a) 10 students come by cycle.
(b) 30 students come by car.
(c) 60 students come by bus.
(d) Bus is used by most of the students.

2. Draw a bar graph of given data in your note book :

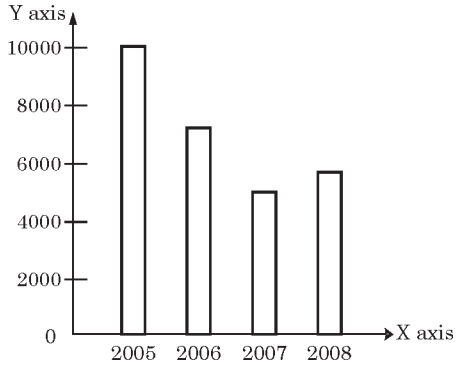
Maruti



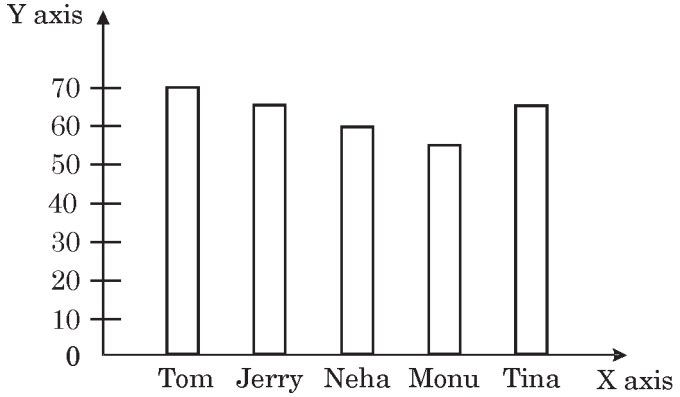
Centro



Matiz



3. Draw a bar graph of given data in your notebook :



24. NUMBERS PATTERNS

Exercise - 47

1. Find the pattern in each of the following and fill the missing numbers :
(a) 1, 2, 3, 4, 5, 6, 7, 8, **9, 10, 11, 12, 13.**
(b) 1, 4, 7, 10, 13, 16, 19, **22, 25, 28, 31, 34.**
(c) 25, 23, 21, 19, 17, 15, **13, 11, 9, 7, 5.**
(d) 2, 4, 8, 2, 4, 8, **2, 4, 8, 2, 4.**
(e) 1, 2, 4, 7, 11, 16, 22, **29, 37, 46, 56, 67.**

2. In each of the following what is the relation between the shaded numbers?
(a) Shaded numbers in the fourth column are the multiples of 4.
(b) Shaded numbers are the multiples of 3.
(c) Shaded numbers are the multiples of 5.

3. The pattern in sum of three consecuive numbers = 3 × middle number.
Also, 189 + **190** + 191 = 3 × 190 = 570

4. The pattern is sum of four consecutive numbers = 2 × (sum of two middle numbers).
Also, 74 + **75** + **76** + 77 = 2 × (75 + 76) = 2 × 151 = 302

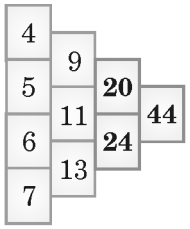
5. The pattern is : Tens place digit 5 its next number.
Also, 55 × 55 = **3025**, 65 × 65 = **4225**, 75 × 75 = **5625**

6. 51 × 51 = 51 × 51 = [(5 × 5) tens + 5 + 5]1 = [25 × 10 + 10] 1 = [250 + 10]1 = 2601
61 × 61 = 61 × 61 = [(6 × 6) tens + 6 + 6] 1 = [36 × 10 + 12]1= [360 + 12]1 = 3721
81 × 81 = 81 × 81 = [(8 × 8) tens + 8 + 8] 1 = [64 × 10 + 16]1= [640 + 16]1 = 6561

7. 111111 × 111111 = 12345**6**54321 1111111 × 1111111 = 1234567654321

8. 55555 × 5 = **277775** 555555 × 5 = **2777775**

9. (a)



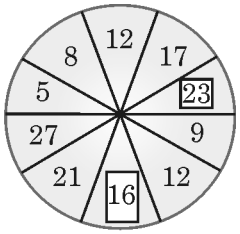
[∴ in column sum of two numbers vertically]

(b)

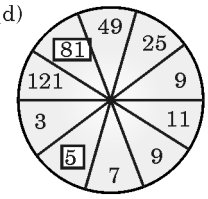
18	20	22	24
15	17	19	21
12	14	16	18
9	**11**	**13**	**15**

[∴Subtract 3 in column numbers and add 2 in row number]

(c)

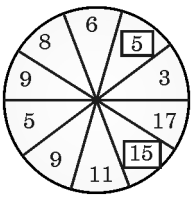


(d)

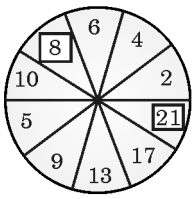


[∴81 is square of 9 and 5 is square root of 25]

(e)



(f)



[∴ difference of 10 and 6 = 2
∴ as pattern add 4 to 17 = 21]

10. Study the pattern in number of triangles and number of vertices in the following :

Number of triangles	1	2	3	4	5	6	9	15
Number of vertices	3	4	5	6	7	**8**	**11**	**17**

Formative Assessment - 4 (Lesson 19 to 24)

1. Change in minutes :

(a) 15 hours
∵ 1 hour = 60 minutes
∴ 15 hours = 15 × 60 = 900 min

(b) 13 hours 20 minutes
∵ 1 hour = 60 minutes
∴ 13 hours = 13 × 60 = 780 minutes
So 13 hours 20 minutes
= (780 + 20) minutes = 800 minutes

(c) 8 hours 40 minutes
∵ 1 hour = 60 minutes
∴ 8 hours = 8 × 60 = 480 min
So 8 hours 40 minutes
= (480 + 40) minutes = 520 minutes

(d) 7 hours 15 minutes
∵ 1 hour = 60 minutes
∴ 7 hours = 7 × 60 = 420 minutes
So 7 hours 15 minutes
= (420 + 15) minutes = 435 minutes

2. Write the type of each angle (acute, obtuse or right angle) :

(a) 65° = Which is less than 90°, So it is acute angle.
(b) 97° = Which is more than 90°, So it is obtuse angle.
(c) 91° = Which is more than 90°, So it is obtuse angle.
(d) 170° = Which is more than 90°, So it is obtuse angle.
(e) 165° = Which is more than 90°, So it is obtuse angle.

3. Fill in the blanks :

(a) The number of line segments forming a rectangle is **four** .
(b) The number of vertex of a square is **four** .
(c) In a rectangle each angle is a **right angle (90°)** .
(d) In a square all the sides are **equal** .

4. Find the perimeter of the triangles, whole sides are :

(a) 6 cm, 7 cm and 8 cm
Perimeter of the triangle
= Sum of length of three sides
$= (6+7+8)$ cm $= 21$ cm

(b) 4 cm, 6 cm and 3 cm
Perimeter of the triangle
= Sum of length of three sides
$= (4+6+3)$ cm $= 13$ cm

(c) 9 cm, 4 cm and 7 cm
Perimeter of triangle = Sum of length of three sides $= (9+4+7)$ cm $= 20$ cm

5. Find the perimeter of a quadrilaterals having its sides :

(a) 4 cm, 6 cm, 3 cm and 2 cm
Perimeter of a quadrilaterals
= Sum of length of four sides
$= (4+6+3+2)$ cm $= 15$ cm

(b) 9 cm, 7 cm, 6 cm and 5 cm
Perimeter of a quadrilaterals
= Sum of length of four sides
$= (9+7+6+5)$ cm $= 27$ cm

6. Find the radius of the circles whose diameters are :

(a) 6 cm
Diameter = 6 cm
$\therefore$ Radius $= \frac{\text{Diameter}}{2} = \frac{6}{2} = 3$ cm

(b) 5 cm
Diameter = 5 cm
$\therefore$ Radius $= \frac{\text{Diameter}}{2} = \frac{5}{2} = 2{\cdot}5$ cm

(c) 10 cm
Diameter = 10 cm
$\therefore$ Radius $= \frac{\text{Diameter}}{2} = \frac{10}{2} = 5$ cm

(d) 7 cm
Diameter = 7 cm
$\therefore$ Radius $= \frac{\text{Diameter}}{2} = \frac{7}{2} = 3{\cdot}5$ cm

7. Find the pattern in each of the following and fill the missing numbers :

(a) 1, 2, 3, 4, 5, 6, 7, 8, **9, 10, 11, 12, 13.**
(b) 1, 4, 7, 10, 13, 16, 19, **22, 25, 28, 31, 34.**
(c) 25, 23, 21, 19, 17, 15, **13, 11, 9, 7, 5.**
(d) 2, 4, 8, 2, 4, 8, **2, 4, 8, 2, 4.**
(e) 1, 2, 4, 7, 11, 16, 22, **29, 37, 46, 56, 67.**

8. A man travelled by train = 4 hours 50 minutes
A man travelled by bus = 3 hours 20 minutes
$\therefore$ He travelled by train more than by bus = 4 hours 50 min – 3 hours 20 min
= 1 hours 30 min
$\therefore$ Required time is = 1 h 30 minutes = 1·30 hours

9. The length of sides of a lawn of a quadrilateral are 175 m, 160 m, 150 m and 165 m
$\therefore$ Perimeter of quadrilateral lawn = sum of its four sides = (175 + 160 + 150 + 165) m
$= 650$ m
and, cost of erecting at ₹ 15 per meter $= 650 \times 15 =$ ₹ 9750
Hence, Length of wall = 650 m and required cost = ₹ 9750

10. A film starts at time = 3·10 p.m.
Film ends at time = 2 hours 45 min after start
$\therefore$ Ending time of film = 3 hours 10 minutes + 2 hours 45 minutes = 5 hours 55 min
$\therefore$ Time of ending is 5·55 hours.

Summative Assessment-2 (Lesson 13 to 24)

1. Which is greater :

(a) $\frac{8}{10}$ or $0{\cdot}08$
$0{\cdot}8 > 0{\cdot}08$
$\therefore$ $\frac{8}{10}$ is greater

(b) $\frac{8}{100}$ or $0{\cdot}8$
$0{\cdot}08 < 0{\cdot}8$
$\therefore$ $0{\cdot}8$ is greater

(c) $\frac{35}{10}$ or $0{\cdot}35$
$3{\cdot}5 > 0 \cdot 35$
$\therefore$ $\frac{35}{10}$ is greater

(d) $\frac{223}{100}$ or 22·3

2·23 < 22·3

∴ 22·3 is greater

2. Write the following in the place-value chart and then add. If any place is left empty, fill it by zero :

(a) 645 km 174 m (b) 143 kg 204 g

3. Subtract the following :

(a) 14 kg 124 g (b) 155 hg 855 g

4. (a) 4 m 96 cm (b) 9 km 804 m

5. (a) 521 g (b) 2 kl 19 *l*

6. 12 kl 6 *l*

7. Write :

(i) 1 quintal 50 kg = 100 kg + 50 kg = 150 kg

(ii) 6·234 quintal = 6·234 × 100 kg = 623·400 kg = 623·4 kg

(iii) 117 kg 450 g = (100 + 17) kg + 450 g
= 100 kg + (17 kg + 450 g) = 1 quintal + (17·450 kg) = 1 quintal 17·45 kg

(iv) 1 quintal 5 kg = 100 kg + 5 kg = 105 kg

8. Cost of one kg of wheat = ₹ 13·75
Cost of 140 kg of wheat = ₹ 13·75 × 140 = ₹ 1925
Hence cost of 140 kg of wheat is ₹ 1925.

9. Cost of 20 umbrellas = ₹ 587·20
Cost of an umbrella = 587·20 ÷ 20 = 29·36
Hence, cost of 1 umbrella is ₹ 29·36.

10. The average monthly income = ₹ 1025·50
Annual income = 1025·50 × 12 = 12306·00
Hence the annual income of man is ₹ 12306.

11. ∵ Distance covered in 5 hours = 40 km
∴ Distance covered in an hour = 40 ÷ 5 = 8 km
∴ Distance he will cove in 12 hours = 12 × 8 = 96 km

12. ∵ The weight of 24 sacks of flour = 1200 kg
∴ The weight of a sack of flour = 1200 ÷ 24 = 50 kg
∴ Weight of 14 sacks = 50 × 14 = 700 kg

13. ∵ Cost of 25 oranges = ₹ 125
∴ Cost of an orange = 125 ÷25 = ₹ 5
∴ Cost of one dozen oranges = 5 × 12 = ₹ 60

14. ∵ Distance covered by train in 8 hours = 560 km
∴ Distance covered by in an hour = 560 ÷ 8 = 70 km
∴ Distance covered in 5 hours = 70 × 5 = 350 km

15. C.P. of Sofa = ₹ 1120
Expense on transportation = ₹ 50
∴ Total C.P. = ₹ (1120 + 50) = ₹ 1170
S.P. of Sofa = ₹ 1350
Here, S.P. > C.P. So, profit = S.P. – C.P. = (1350 – 1120) = ₹ 230

$$\text{Profit \%} = \frac{\text{Profit}}{\text{C.P.}} \times 100 = \frac{230}{1170} \times 100 = \frac{23000}{1170} = 19{\cdot}65\%$$

16. Loss % = 10 %
S.P. = ₹ 135, C.P. = ?

$$\text{C.P.} = \left[\frac{100}{(100 - \text{Loss\%})} \times \text{S.P.}\right]$$

17. C.P. of an article = ₹ 950
S.P. of an article = ₹ 760
Here, C.P. > S.P.

C.P. $= \frac{100}{(100-10)} \times 135$

$= \frac{100}{90} \times 135 = \frac{1350}{9} =$ ₹ 150

Hence the cost price is ₹ 150.

So, Loss = C.P. – S.P.

= ₹ (950 – 760) = ₹ 190

Loss % $= \frac{\text{Loss}}{\text{C.P.}} \times 100 = \frac{190}{950} \times 100 = \frac{19000}{950} = 20\%$

18. $\therefore$ Average of fare $= \frac{\text{Total of rail fare}}{\text{No. of places}} = \frac{12+17+19+50}{4} = \frac{98}{4} = 24 \cdot 50$

19. $\therefore$ Average rainfall $= \frac{\text{Total of rainfalls}}{\text{No. of months}} = \frac{(2 \cdot 8 + 5 \cdot 5 + 5 \cdot 8 + 12 \cdot 5 + 4 \cdot 4)}{5} = \frac{31 \cdot 0}{5} = 6 \cdot 2$ cm

20. Change in hours-minutes :

(a) 130 minutes

$\because$ 60 minutes = 1 hour

$\therefore$ 1 minutes $= \frac{1}{60}$ hour

So 130 minutes $= \frac{130}{60}$

= 2 hours 10 minutes = 2·10

(b) 95 minutes

$\because$ 60 minutes = 1 hour

$\therefore$ 1 minutes $= \frac{1}{60}$ hour

So 95 minutes $= \frac{95}{60} = 1$ hour 35 minutes

= 1·35

(c) 185 minutes

$\because$ 60 minutes = 1 hour

$\therefore$ 1 minutes $= \frac{1}{60}$ hour

So 185 minutes $= \frac{185}{60}$

minutes

= 3 hours 5 minutes = 3·05

(d) 220 minutes

$\because$ 60 minutes = 1 hour

$\therefore$ 1 minutes $= \frac{1}{60}$ hour

So 220 minutes $= \frac{220}{60} = 3$ hours 40

= 3·40

21. An institution starts at time = 7 : 30

It continues till at time = 4 hours 40 m

$\therefore$ Closing time = 7 hours 30 min + 4 hours 40 min = 12 hours 10 min

Hence closing time is 12 : 10 hrs.

22. Neha starts work at time = 8 : 15 a.m.

Neha ends work at time = 1 : 30 p.m. = 13·30 hours

So Neha's total working time = 13 hours 30 min – 8 hours 15 min = 5 hours 15 min

$\therefore$ Her total working time 5·15 hrs.

23. Construct line segments of the given lengths and name them :

(a) 3 cm 

(b) 9 cm 

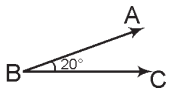
(c) 2 cm 3 mm 

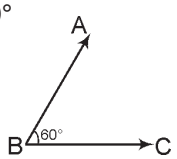
(d) 9 cm 5 mm 

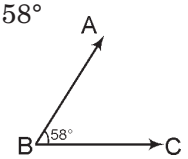
(e) 2 cm 3 mm 

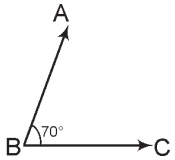
(f) 8 cm 4 mm 

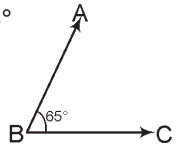
24. With the help of ruler and protractor, draw the angles of the following measures :

(a) 20° 

(b) 60° 

(c) 58° 

(d) 70° 

(e) 65° 

25. Side of square field = 15 m

$\therefore$ Length of the rope = 4 × side of square field = 4 × 15 m = 60 m

Hence the length of the rope is 60 m.

26. Length of swimming pool = 6 m

Breadth of swimming pool = 9 m

$\therefore$ Perimeter of pool = $2(l + b) = 2(6 + 9)$ m = 2×15 m = 30 m

So, the required perimeter of swimming pool is 30 m.

27. Length of a field = 24 m

Breadth of a field = 15 m

So the perimeter of field = $2(l + b) = 2(24 + 15)$ m = 2×39 m = 78 m

Hence, the required perimeter of field is 78 m.

28. Fill in the blanks :

(a) Radius of a circle is **half** its diameter.

(b) All radii of a circle are **equal**.

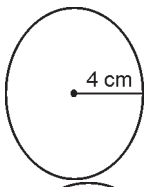
(c) The diameter is **twice** the radius.

(d) The longest chord of the circle is the **diameter** .

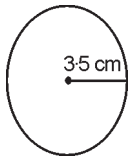
(e) A diameter always passes through **centre** of the circle.

29. Using a compass, draw circles with the following radii :

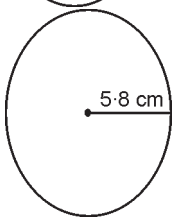
(a) 4 cm



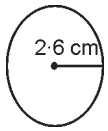
(b) 3·5 cm



(c) 5·8 cm



(d) 2·6 cm



30. Answer the following :

(a) It is one that has two halves which are the same in shape and size. If you fold a picture of a symmetrical object. One half will cover the other.

(b) Only one symmetrical line is in an isosceles triangle.

(c) There are 3 symmetrical lines in equilateral triangles.

(d) There are two symmetrical lines in a rectangle.

(e) There are 4 symmetrical lines in a square.

(f) Yes, A circle have five or more lines of symmetry.

31. In each of the following what is the relation between the shaded numbers?

(a) Shaded numbers in the fourth column are the multiples of 4.

(b) Shaded numbers are the multiples of 3.

(c) Shaded numbers are the multiples of 5.

❑