Unit - 1

REVISION

1. Write the number names for the following numerals :
(a) Three thousand Eight hundred ninety five
(b) Four thousand six hundred twenty eight
(c) Seven thousand three hundred seventy eight
(d) Eight thousand five hundred sixty seven

2. Write the numerals for the following number names :
(a) 11412 (b) 25015 (c) 4831 (d) 8610

3. (a) 4 (b) 65

4. Fill in the blanks :
(a) 1 (b) 99 (c) 100 (d) 1000 (e) 10 (f) 999 (g) 9 (h) 10000 (i) 9999 (j) 10000 (k) 4988 (l) 7895 (m) 4765 (n) 999

5. See the pattern and fill in the blanks :
(a) 7000, 8000, 9000, 10000 (b) 6032, 6232, 6432, 6632 (c) 5800, 4800, 3800, 2800

6. (a) 5079 (b) 5331

7. (a) 8749, 7984, 7594, 7562, 6132 (b) 1325, 1752, 5684, 7594, 8459

8. 5679, 5680, 5681, 5682, 5683, 5684

9. Write the following numbers in expanded form :
(a) 4000 + 700 + 50 + 9 (b) 7000 + 800 + 90 + 4
(c) 1000 + 100 + 00 + 0 (d) 1000 + 100 + 90 + 9

10. Write the following numbers in short form :
(a) 4089 (b) 5010 (c) 5440 (d) 8798

11. Put the sign with < or > .
(a) < (b) < (c) > (d) >

12. Add the following :
(a) 848 (b) 473 (c) 4508

13. Subtract the following :
(a) 230 (b) 211 (c) 999

14. Write the missing number in the blanks :
(a) 3 (b) 6 (c) 9

15. (a) 900 (b) 9899

16. Write the following numbers in Roman numerals :
(a) XXXV (b) XXIX (c) CCLXV (d) CCCXX

17. Write the following numbers in Hibdu-Arabic numbers :
(a) 25 (b) 56 (c) 450 (d) 66

18. Multiply :
(a) 135 (b) 133 (c) 200 (d) 632 (e) 3052 (f) 1125

19. Divide :
(a) 4 (b) 155 (c) 17 (d) 109 (e) 100 (f) 45

20. Divide and find the quotient and remainder :
(a) Q-9, R-3 (b) Q-9, R-12 (c) Q-34, R-6 (d) Q-54, R-5
(e) Q-31, R-7 (f) Q-41, R-5

21. (a) $\frac{6}{7}$ (b) $\frac{8}{4}$

22. What fraction of each of the following figures is shaded :
(a) $\frac{6}{8}$ (b) $\frac{8}{10}$ (c) $\frac{4}{7}$

23. Fill in the blanks :
(a) $\frac{7}{13}$ (b) $\frac{4}{7}$ (c) $\frac{12}{9}$ (d) $\frac{15}{11}$ (e) $\frac{5}{29}$ (f) $\frac{10}{13}$

24. Put the correct sign with > or < :
(a) < (b) > (c) < (d) >

25. Fill in the blanks :
(a) 12 (b) 1

26. Write the total number of triangle in each figure :
(a) 5 (b) 8

27. Find the perimeter of each figure :
(a) Perimeter = sum of all sides = (4 + 5 + 4 + 5) cm = 18 cm
(b) Perimeter = sum of all sides = (6 + 5 + 4 + 7) cm = 22 cm

28. 5 cm 4 cm

29. Name all the figures given below :
(a) cylinder (b) cone (c) cuboid

30. Add the following :
(a) ₹ 25·32 (b) 59·4 ₹ (c) 19 ₹ 37 P (d) 143 ₹ 88 P

31. Subtract the following :
(a) 99 P (b) 162 ₹ 99 P (c) 61 ₹ 01 P

1. ROMAN NUMBERS

Exercise - 1

1. Write the following numbers in Roman numerals :
(a) 20 = XX (b) 85 = LXXXV (c) 35 = XXXV (d) 400 = CD
(e) 550 = DL (f) 410 = CDX (g) 250 = CCL (h) 900 = CM

2. Write the following Roman numerals in Hindu-Arabic numerals :
(a) XXIV = 10 + 10 + 4 = 24 (b) CCV = 100 + 100 + 5 = 205
(c) DCL = 500 + 100 + 50 = 650 (d) MMMD = 1000 + 1000 + 1000 + 500 = 350
(e) CCCIV = 100 + 100 + 100 + 4 = 304 (f) XXXVII = 10 + 10 + 10 + 7 = 37
(g) XLIX = 40 + 9 = 49 (h) CDXX = 400 + 10 + 10 = 420

Exercise - 2

1. Write the Hindu-Arabic numbers for the following :
(a) MDCXXIV = 1000 + 500 + 100 + 10 + 10 + 4 = 1624
(b) MDCCCLXV = 1000 + 500 + 100 + 100 + 100 + 50 + 10 + 5 = 1865
(c) CCXCIX = 100 + 100 + 90 + 9 = 299
(d) DCCLXXVI = 500 + 100 + 100 + 50 + 10 + 10 + 6 = 776
(e) MCMXLIV = 1000 + 900 + 40 + 4 = 1944
(f) CLXXXIX = 100 + 50 + 10 + 10 + 10 + 9 = 189

2. Write roman numerals for the following :
(a) 1340 = 1000 + 300 + 40 = MCCCXL

(b) 1298 = 1000 + 200 + 90 + 8 = MCCXCVIII
(c) 3579 = 3000 + 500 + 70 + 9 = MMMDLXXIX
(d) 2534 = 2000 + 500 + 30 + 4 = MMDXXXIV
(e) 1707 = 1000 + 700 + 7 = MDCCVII
(f) 1743 = 1000 + 700 + 40 + 3 = MDCCXLIII
(g) 1604 = 1000 + 600 + 4 = MDCIV
(h) 1716 = 1000 + 700 + 10 + 6 = MDCCXVI
(i) 1949 = 1000 + 900 + 40 + 9 = MCMXLIX

3. Fill in the blanks with Roman numbers :
Ans. Do yourself.

2. EXPANSION OF NUMBER

Exercise - 3

1. Write the following numbers in words :
(a) Six lakh twenty three thousand three hundred forty two
(b) Twenty five lakh forty eight thousand two hundred six
(c) Three crore thirty eight lakh forty thousand two hundred thirty eight
(d) Forty thousand six hundred twelve
(e) Two lakh sixty thousand four hundred thirty five
(f) One lakh eight hundred forty six
(g) Six lakh Fifty four thousand eight hundred thirty two
(h) Four crore thirty five lakh sixty two thousand two hundred eighty five
(i) Fifteen crore forty lakh fifty thousand one
(j) Five lakh thirty five thousand one
(k) Seventy five lakh sixty five thousand seven hundred twenty nine
(l) Ninety eight crore eighty nine lakh seventy nine thousand seven hundred forty nine

2. Write the following in numerals :

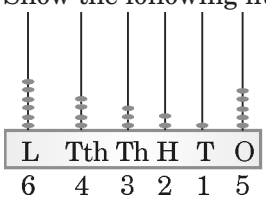
(a) 25,37,779	(b) 50,39,239	(c) 5,00,05,001	(d) 5,36,00,031
(e) 92,88,069	(f) 15,00,005	(g) 3,50,57,702	(h) 7,30,00,012
(i) 30,36,00,000	(j) 56,79,600	(k) 83,00,51,008	(l) 38,00,006

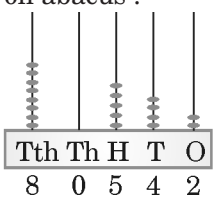
3. See the pattern and fill in the blanks :
(a) 120 000, 130 000, 140 000, **150 000, 160 000, 170 000**
(b) 64 320, 64 420, 64 520, **64 620, 64, 720, 64 820**
(c) 2000 10, 2000 20, 2000 30, **2000 40, 2000 50, 2000 60**
(d) 55 750, 56 750, 57 750, **58 750, 59 750, 60 750**

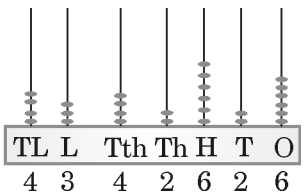
4. The number name of 1,04,003 is : One lakh four thousand three.
Also, 300401 = Three lakh four hundred one.

5. Numbers shown on the abacus write in numbers and number names :
(a) 4,33,343 = Four lakh thirty three thousand three hundred forty three
(b) 4,25,423 = Four lakh twenty five thousand four hundred twenty three.
(C) 4,43, 37, 452 = Four crore forty three lakh thirty seven thousand four hundred fifty two.

6. Show the following numbers on abacus :







7. Choose the correct number in the following :
(i) (c) 402005 (ii) (a) 1003001 (iii) (a) 800080

8. Leave the place between the numbers and write the following numbers :
(a) 5 53 267 (b) 6 95 43 213 (c) 44 57 002 (d) 20 00 00 006

9. Put the commas between the number in Indian place value chart and rewrite the following numbers :
(a) 4,56,343 (b) 2,01,01,002 (c) 84,56,003 (d) 30,01,00,202

10. Write the following numbers and number names leaving the place between the number in Indian place value chart and Internatial place value chart :
(a) In Indian Place value chart No. = 22,34,567
No. Names = Twenty two lakh thirty four thousand five hundred sixty seven.
In International place value chart No. 2, 234, 567
No. Names = Two million two hundred thirty four thousand five hundred sixty seven
(b) In Indian Place value chart No. = 3,40,30,102
No. Names = Three crore forty lakh thirty thousand one hundred two.
In International place value chart No. 34, 030, 102
No. Names = Thirty four million thirty thousand one hundred two.
(c) In Indian Place value chart No. = 4, 02, 00, 106
No. Names = Four crore two lakh one hundred six.
In International place value chart No. = 40, 200, 106
No. Names = Forty million two hundred thousand one hundred six.

11. Fill in the blanks :
(a) 6 million = **60** Lakh (b) 20 Lakh = **2** million (c) 5 Crore = **50** million

Exercise - 4

1. Fill in the blanks :
(a) 2 is in **hundred** place, so the place value of 2 in 257 = **200**
(b) 3 is in **tens** place, so the place value of 3 in 1238 = 3 × 10 = **30**
and 2 is in **hundred** place, so the place value of 2 = **200**
(c) 5 is in **thousand** place, so the place value of 5 in 15067 = 5 × 1000 = **5000**
and the place value of 0 = **0**
(d) 6 is in **hundred** place, so the place value of 6 in 43695 = 6 × 100 = **600**
and 3 is in **thousand** place, so the place value of 3 = 3 × 1000 = **3000**
(e) 5 is in **lakh** place, so the place value of 5 in 567894 = 5 × 100000 = **500000**
and 8 is in **hundred** place, so the place value of 8 = 8 × 100 = **800**.
(f) 3 is in ten **lakh** place, so the place value of 3 in 3001004 = 3 × 1000000 = **3000000**
and 4 is in **ones** place, so the place value of 4 = 4 × 1 = **4**.

2. Write the place value of each number :
(a) 1, 20, 300, 4000, 50000 (b) 4, 50, 300, 6000, 50000, 400000

3. Write the following numbers in expanded form :
(a) 45322 = 40,000 + 5000 + 300 + 20 + 2
(b) 856214 = 800000 + 50000 + 6000 + 200 + 10 + 4
(c) 3546432 = 3000000 + 500000 + 40000 + 6000 + 400 + 30 + 2
(d) 456046 = 400000 + 50000 + 6000 + 000 + 40 + 6

4. Write the following numbers in expanded form :
(a) 4 × 100000 + 3 × 10000 + 2 × 1000 + 1 × 100 + 4 × 10 + 0 × 1
(b) 5 × 100000 + 7 × 10000 + 6 × 1000 + 5 × 100 + 3 × 10 + 3 × 1
(c) 3 × 1000000 + 1 × 100000 + 0 × 10000 + 0 × 1000 + 4 × 100 + 0 × 10 + 2 × 1
(d) 2 × 1000000000 + 0 × 100000000 + 0 × 10000000 + 2 × 1000000 + 0 × 100000 + 0 × 10000 + 4 × 1000 + 0 × 100 + 0 × 10 + 5 × 1

(e) $7 \times 1000000 + 2 \times 100000 + 0 \times 10000 + 0 \times 1000 + 1 \times 100 + 0 \times 10 + 4 \times 1$
(f) $2 \times 100000 + 1 \times 10000 + 0 \times 1000 + 1 \times 100 + 2 \times 10 + 8 \times 1$
(g) $5 \times 100000 + 0 \times 10000 + 2 \times 1000 + 0 \times 100 + 1 \times 10 + 0 \times 1$
(h) $6 \times 100000 + 4 \times 10000 + 3 \times 1000 + 2 \times 100 + 0 \times 10 + 1 \times 1$

5. Write the following expanded form in short form and fill in the blanks :
(a) 5236248 (b) 8070702 (c) 9999999 (d) 600385

6. Fill in the blanks with correct numbers :
(a) 4322 = **4** Th + **3** H + **2** T + **2** O
(b) 64324 = **6** Tth + **4** Th + **3** H + **2** T + **4** O
(c) 425013 = **4** L + **2** Tth + **5** Th + **0** H + **1** T + **3** O
(d) 101001 = **100000** + **1000** + **1**

7. Put the signs with > or < :
(a) < (b) > (c) > (d) > (e) < (f) > (g) > (h) > (i) <
(j) >

8. Write the predecessor of the following numbers :
(a) 100001 = 100001 – 1 = 100000 (b) 10102 = 10102 – 1 = 10101
(c) 69760 = 69760 – 1 = 69759 (d) 599800 = 599800 – 1 = 599799
(e) 143010 = 143010 – 1 = 143009 (f) 54331 = 54331 – 1 = 54330
(g) 643210 = 643210 – 1 = 643209 (h) 245430 = 245430 – 1 = 245429

9. Write the successor of the following numbers :
(a) 11089 = 11089 + 1 = 11090 (b) 86999 = 86999 + 1 = 87000
(c) 66389 = 66389 + 1 = 66390 (d) 94564 = 94564 + 1 = 94565
(e) 54328 = 54328 + 1 = 54329 (f) 33542 = 33542 + 1 = 33543
(g) 569898 = 569898 + 1 = 569899 (h) 643990 = 643990 + 1 = 643991

3. OPERATIONS

Exercise - 5

Add the following :

1. 6593742 + 12593478 + 13523217 = 32710437 **2.** 334425176 + 245913482 = 580338658

3. 67345928 + 32592876 + 139543781 = 239482585 **4.** 259345217 + 1392 + 50 = 259346659

Subtract the following :

5. 934578931 – 721389356 = 213189575 **6.** 783459637 – 4356947 = 779102690

7. No. of wheat plants = 13425937, No. of rice plants = 12159432
No. of maize plants = 781396
Total no. of plants = 26366765
∴ The total no. of plants of that filed is 26366765.

8. No. of apple plants = 125936876, No. of Mango plants = 35947813
No. of more plants = 125936876 – 35947813 = 89989063
∴ There are apple plants 89989063 more than mango plants in the garden.

9. No. of rats = 342159374, No. of cats = 59345781
Total no. of rats and cats = 342159374 + 59345781 = 401505155
∴ There are 401505155 rats and cats in the jugle.

10. No. of biscuits of coconut flavour = 158376125
No. of biscuits of orange flavour = 731928654
Total no. of biscuits = 158376125 + 731928654 = 890304779
∴ Total no. of biscuits is 890304779 is the shop.

11. Milk sold in 2012 = 32513971 l, Milk sold in 2013 = 53497811 l

$\therefore$ Total milk sold in two years = 32513971 + 53497811 = 86011782

$\therefore$ The milk dairy 86011782 l milk sold in both years.

12. In above ques. in 2013 diary sold more milk and more quantity of milk is

= 53497811 – 32513971 = 20983840

13. Length of green cloth = 438217506 m

Length of red cloth = 354976313 m

$\therefore$ Length of more green cloth = 438217506 – 354976313 = 83241193

$\therefore$ 83241193 m green cloth is more than the red cloth.

14. No. of cancelled votes = 3591376, No. of right votes = 12594378

No. of persons who did not vote = 234512

$\therefore$ Total no of voters = 12594378 + 3591376 + 234512 = 16420266

$\therefore$ 16420266 voters were in that voting centre.

Exercise - 6

Divide and check your answer :

1. 359786 ÷ 100 = 3597

Dividend = Quotient × divisor + Remainder

359786 = 3597 × 100 + 86

= 359700 + 86 = 359786

$\therefore$ So the answer is correct.

2. 753462 ÷ 100 = 7534

Dividend = Quotient × divisor + Remainder

753462 = 7534 × 100 + 62

= 753400 + 62 = 753462

$\therefore$ So the answer is correct.

3. 77777 ÷ 10 = 7777

Dividend = Quotient × divisor + Remainder

77777 = 7777 × 10 + 7

= 77770 + 7 = 77777

$\therefore$ So the answer is correct.

4. 2175960 ÷ 1000 = 2175

Dividend = Quotient × divisor + Remainder

2175960 = 2175 × 1000 + 960

= 2175000 + 960 = 2175960

$\therefore$ So the answer is correct.

5. 257931 ÷ 137 = 1882

Dividend = Quotient × divisor + Remainder

257931 = 1882 × 137 + 97

= 257834 + 97 = 257931

$\therefore$ So the answer is correct.

6. 13542783 ÷ 1234 = 10974

Dividend = Quotient × divisor + Remainder

13542783 = 10974 × 1234 + 867

= 13541916 + 867 = 13542783

$\therefore$ So the answer is correct.

7. 6359478 ÷ 213 = 29856

Dividend = Quotient × divisor + Remainder

6359478 = 29856 × 213 + 150

= 6359328 + 150 = 6359478

$\therefore$ So the answer is correct.

8. 375333001 ÷ 3153 = 119039

Dividend = Quotient × divisor + Remainder

375333001 = 119039 × 3153 + 3034

= 375329967 + 3034 = 375333001

$\therefore$ So the answer is correct.

Find the product :

9. 1000 × 35192 = 35192000 **10.** 356827 × 310 = 110616370 **11.** 637128 × 31 = 19750968

12. 3159 × 257 = 811863 **13.** 33991 × 287 = 9755417 **14.** 63271 × 35 = 2214485

15. 84352 × 133 = 11218816 **16.** 357 × 1399 = 499443

17. 957 × 387 × 425 = 157402575 **18.** 121 × 3934 = 476014

19. 8759 × 321 = 2811639 **20.** 1837 × 135 = 247995

21. 5631 × 162 × 205 = 187005510 **22.** 1999 × 98 = 195902

23. 7777 × 777 = 6042729 24. 3535 × 35 × 218 = 26972050

Exercise - 7

1. The cost of a chair = ₹ 683
The cost of 245 chairs = ₹ 683 × 245 = 167335
Hence, The total cost of 245 chairs is ₹ 167335.

2. No. of pens in a box = 267
No. of pens in 187 boxes = 267 × 187 = 49929
Hence, there are 49929 pens in 187 boxes.

3. No. of toys produce in a day = 2315
No. of toys produce in 48 days = 2315 × 48 = 111120
Hence, The factory produces 111120 toys in 48 days.

4. The cost of an almirah = ₹ 3571
The cost of 211 almirah = ₹ 3571 × 211 = 753481
Hence, the total cost of 211 almirah is ₹ 753481.

5. Quantity of sold milk in a day = 7345 l
Quantity of sold milk in 2 years = 7345 × 730 = 5361850 [∵ 1 year = 365 days]
Hence, 5361850 l milk sold in two years.

6. Weight of a machine = 3412 kg
Weight of 378 machines = 3412 × 378 kg = 1289736
Hence, the total weight of 378 machines in 1289736 kg.

7. No. of shawls produced in a day = 350
No. of days to produce 15750 shawls = 15750 ÷ 350 = 45
Hence, the total no. of days in 45.

8. Weight of a wheat sack = 375 kg
Weight of 482 wheat = 375 × 482 kg = 180750 kg
Hence, the total weight of 482 sacks is 180750 kg.

9. The product of two number = 374421
One no. = 2733
Other no. = 374421 ÷ 2733 = 137
Hence, the required no. is 137.

10. No. of pencils in a packet = 224
No. of packets to keep 1423296 pencils = 1423296 ÷ 224 = 6354
Hence, 6354 packets are needed to keep pencils.

11. No. of locks produced in a day = 270
No. of days to produce 53460 locks = 53460 ÷ 270 = 198
Hence, 53460 locks can produce in 198 days.

12. The cost of 100 TV sets = ₹ 2500000
The cost of 1 TV set = ₹ 2500000 ÷ 100 = 25000
Hence, the cost of one T.V. is ₹ 25000.

13. No. of men = 140
Each man shared = ₹ 25240
Total amount = ₹ 25240 × 140 = 3533600
Hence, the total amount of business is ₹ 3533600.

14. 93567413 ÷ 133 = 703514
Remainder = 51

15. Total no. of fruits = 1335600
No. of fruits in a basket = 280
Total no. of baskets = 1335600 ÷ 280 = 4770
Hence, the total no. of baskets to put all the fruits is 4770.

16. No. of words type in per minute = 65
No. of words type in an hour = 65 × 60 = 3900 [an hour = 60 minutes]
Hence, She types 3900 words in an hour.

17. No. of apples in a box = 34576
No. of apples in 128 boxes = 34576 × 128 = 4425728
Hence, there are 4425728 apples in 128 boxes.

18. No. of students = 8550
Money deposite by each student = ₹ 4450
Total fee = ₹ 4450 × 8550
Hence, the total fee of the school is ₹ 38047500.

19. The product of two numbers = 1000000, One no. = 10
Other no. = 1000000 ÷ 10 = 100000 Hence, The other no. is 100000.

4. MULTIPLICATIONS AND DIVISION

Exercise - 8

1. Multiply the following :
(a) 23257719 (b) 22936732 (c) 41364021 (d) 6400000

2. Find the product of the following numbers :
(a) $5894 \times 240 = 1414560$ (b) $60000 \times 464 = 27840000$
(c) $2896 \times 997 = 2887312$

3. Use the distributive property to find each product :
(a) $23 \times 56 = 23 \times (50 + 6)$
$= 23 \times 50 + 23 \times 6$
$= 1150 + 138 = 1288$
(b) $29 \times 36 = 29 \times (30 + 6)$
$= 29 \times 30 + 29 \times 6$
$= 870 + 174 = 1044$
(c) $22 \times 83 = 22 \times (80 + 3)$
$= 22 \times 80 + 22 \times 3$
$= 1760 + 66 = 1826$
(d) $32 \times 54 = 32 \times (50 + 4)$
$= 32 \times 50 + 32 \times 4$
$= 1600 + 128 = 1728$

4. Using properties of multiplication, find the product each of the following :
(a) $8 \times 10 + 8 \times 4 = 80 + 32 = 112$
(b) $15 \times 5 + 15 \times 6 + 15 \times 1 = 75 + 90 + 15 = 180$
(c) $6 \times 30 + 6 \times 7 + 6 \times 5 = 180 + 42 + 30 = 252$
(d) $275 \times 0 = 0$

5. The cost of a book = ₹ 16.90
The cost of a 356 books = ₹ 16.90 × 356
= 6016·40
So, the cost of 356 books is ₹ 6016·40

6. Amount paid by each pupil = ₹ 25
Total amount paid by 354 pupils
= ₹ 25 × 354 = 8850
So, ₹ 8850 was collected from 354 pupils.

7. The cost of per metre linen = ₹ 378
The cost of 857 metre linen = ₹ 378 × 857
So, the total cost of 857 metre of linen is ₹ 323946.

8. Total no. of students = 79,479
Fees paid by each student = ₹ 488
= ₹ 79479 × 488
So, the total amount collected by board is ₹ 38785752.

9. Weight of nails produced in a day = 1298 kg
The total production of a factory from July to November = 1298 × 153 kg = 198594 kg
So, the total production of factory is 198594 kg.

10. No. of cartons = 402
No. of apples in one carton = 325
∴ Total no. of apples = 402 × 325
= 130650
So, 130650 apples can be packed in 402 cartons.

Exercise - 9

1. Divide and find the quotient and the remainder. Also verify the answer :
(a) $548967 \div 88 = 6238$, Remainder = 23
Dividend = Divisor × Quotient + Remainder
$548967 = 88 \times 6238 + 23 = 5489944 + 23 = 548967$
Hence, the answer is verified.
(b) $298795 \div 1000 = 298$, Remainder = 795
Dividend = Divisor × Quotient + Remainder
$= 298795 = 1000 \times 298 + 795 = 298000 + 795 = 298795$
Hence, the answer is verified.
(c) $80000000 \div 10000 = 8000$, Remainder = 0
Dividend = Divisor × Quotient + Remainder
$= 80000000 = 10000 \times 8000 + 0 = 80000000 + 0 = 80000000$
Hence, the answer is verified.

(d) 5497843 by 995 = 5497843 ÷ 995 = 5525
Dividend = Divisor × Quotient + Remainder
5497843 = 995 × 5525 + 468 = 5497375 + 468 = 5497843
Hence, the answer is verified.

(e) 286254 by 440 = 286254 ÷ 440 = 650, Remainder = 254
Dividend = Divisor × Quotient + Remainder
286254 = 440 × 650 + 254 = 286000 + 254 = 286254
Hence, the answer is verified.

2. Find the dividend when the following are given :

(a) Divisor — 274 Quotient — 350 Remainder — 48
We know that, Dividend = Divisor × Quotient + Remainder
∴ Dividend = 274 × 350 + 48 = 95900 + 48 = 95948

(b) Divisor — 554 Quotient — 454 Remainder — 553
We know that, Dividend = Divisor × Quotient + Remainder
∴ Dividend = 554 × 454 + 553 = 251516 + 553 = 252069

(c) Divisor — 666 Quotient — 254 Remainder — 203
We know that, Dividend = Divisor × Quotient + Remainder
∴ Dividend = 666 × 254 + 203 = 169164 + 203 = 169367

(d) Divisor — 948 Quotient — 444 Remainder — 280
We know that, Dividend = Divisor × Quotient + Remainder
∴ Dividend = 948 × 444 + 280 = 420912 + 280 = 421192

3. Cost of 1 fan = ₹ 436
No. of fans for ₹ 23108 = 23108 ÷ 436 = 53
Hence, A dealer can purchase 53 fans.

4. Distance covered in 486 days = 308610 km
Distance covered in per day = 308610 ÷ 486 = 635
Hence, The car runs per day 635 km distance.

5. To get required no, we divide 298596 by 69.
So, 298596 ÷ 69 = 4327
Hence, 33 should be subtracted from 298596 to become divisible by 69.

6. First we divide 569795 by 298 So :
So, 569795 ÷ 298 = 1912
∴ The required no. = 298 – 19 = 279
Hence, we should be added 279 to 569795 to become divisible by 298.

7. We have : Divisor = 204, Q = 678, R = 82
The required no. will be the dividend.
So, Dividend = Divisor × Quotient + Remainder
= 204 × 678 + 82 = 138312 + 82 = 138394
Hence, the required no. is 138394.

8. Total no. of buses, 483
Expenditure on oil for all buses = ₹ 1,05,53,550
Amount of money spent for each bus = 10553550 ÷ 483 = 21850.
Hence, the amount of money spent for bus is ₹ 21850.

Exercise - 10

1. Solve the following expressions :

(a) 843859 – 1930 – 23694 – 88324
= 843859 – (1930 + 23694 + 88324)
= 843859 – 113948 = 729911

(b) 128 ÷ 4 + 12 × 5 – 4
= (128 ÷ 4) + (12 × 5) – 4
= 32 + 60 - 4 = (32 + 60) – 4 = 92 – 4 = 88

(c) 3×8 – 5 + 28 ÷ 7 = (3 × 8) – 5 + (28 ÷ 4)
= 24 – 5 + 7 = (24 + 7) – 5 = 31 – 5 = 26

(d) 5246 × 149 + 433 – 66666
= (5246 × 149) + 433 – 66666
= (781654 + 433) – 66666
= 782087 – 66666 = 715421

(e) $493800 \div 25 + 48672 - 2843 \times 19$
$= (493800 \div 25) + 48672 - (2843 \times 19)$
$= 19752 + 48672 - 54017$
$= 68424 - 54017 = 14407$

(f) $6573 \times 99 + 832 \times 65 - 2324 \times 56 - 1848 \times 0$
$= 650727 + 54080 - 130144 - 0$
$= 704807 - 130144 - 0$
$= 574663 - 0 = 574663$

(g) $81954 - 6854 - 1002 + 119 \times 21 \div 7$
$= 81954 - 6854 - 1002 + (119 \times 3)$
$= 81954 - 6854 - 1002 + 357 = (81954 + 357) - (6854 + 1002)$
$= 82311 - 7856 = 74455$

5. MULTIPLE AND FACTOR

Exercise - 11

Fill in the blanks :

1. (a) 5 (b) 16 (c) 4, 8 (d) 6, 12, 18

Answer the questions :

2. (a) First four multiples of 4 = 4, 8, 12, 16
(b) First five multiples of 10 = 10, 20, 30, 40, 50
(c) First six multiples of 9 = 9, 18, 27, 36, 45, 54

3. (a) Multiples of 2 are = 6, 8, 14, 16, 18
(b) Multiples of 3 are = 3, 6, 15, 18, 21, 27

4. (a) The multiples of 4 between 13 and 30 are : 16, 20, 24, 28
(b) The multiples of 7 between 20 and 30 are : 21, 28

5. (a) Yes 15, the multiple of 5. (b) Yes 28, the multiple of 9.
(c) Yes 42, the multiple of 7. (d) Yes 72, the multiple of 9.

6. (a) First three multiples of 2 = 2, 4, 6; First three multiples of 3 = 3, 6, 9
(b) First two multiples of 3 = 3, 6; First two multiples of 4 = 4, 8

7. (a) First four even counting numbers are 2, 4, 6 and 8.
(b) First five odd counting numbers are 1, 3, 5, 7 and 9.
(c) Even numbers between 8 and 20 are 10, 12, 14, 16, 18.
(d) The smallest counting even number is 2.
(e) The biggest even one digits number is 8.
(f) The odd numbers between 20 and 24 are 21 and 23.

8. Even numbers : 2, 8, 60, 84, 200, 256, 458, 512, 444

9. Find the given numbers are odd or even :
Ans. (a), (b), (c), (d) even numbers, remain are odd numbers

10. Find the number whose multiple is 63 in the following :
(c) 7

11. Find the number whose multiple is 85 :
(d) 17, 85 is the multiple of 17.

12. Write two successor multiples of the given numbers :
(a) 7, 14, 21, **28, 35** (b) 8, 16, 24, **32, 40.**

13. (a) Multiples of 3 — 12, 18 (b) Multiples of 5 — 10, 25

Exercise - 12

1. Fill in the blanks :
(a) Factors (b) Factors (c) 12 (d) 15 (e) 42 (f) 5

2. Write two factors for each of the following :
(a) Two factors of 12 = 1 and 2 (b) Two factors of 8 = 1 and 2
(c) Two factors of 24 = 1 and 2 (d) Two factors of 32 = 1 and 2
(e) Two factors of 48 = 1 and 2

3. Write three factors for each of the following :
(a) Three factors of 10 = 1, 2 and 5 (b) Three factors of 18 = 1, 2 and 3
(c) Three factors of 24 = 1, 2 and 3 (d) Three factors of 27 = 1, 3 and 9
(e) Three factors of 40 = 1, 2 and 4

4. Write four factors for each of the following :
(a) Four factors of 16 = 1, 2, 4 and 8 (b) Four factors of 24 = 1, 2, 3 and 4
(c) Four factors of 48 = 1, 2, 3, 4 (d) Four factors of 56 1, 2, 4 and 7
(e) Four factors of 72 = 1, 2, 3 and 4

5. Is second number the factor of first number ?
(a) Yes, Second no. is the factor of 24. (b) No, Second no. is not the factor of 32.
(c) Yes, Second no. is the factor of 465. (d) No, Second no. is not the factor of 346.

6. The factors of 18 are = 2, 3, 6, 9 and 18.

7. Is the first number the factor of second number?
(a) Yes, 6 is the factor of 18 (b) No, 7 is not the factor of 40
(c) Yes, 8 is the factor of 56 (d) No, 12 is not the factor of 64

8. Prime numbers are : 2, 3, 5, 7, 11, 13.

9. Composite numbers are : 4, 6, 8, 9, 10, 12, 14, 15, 16, 18 and 20.

Exercise - 13

1. Fill in the blanks with divisible or not divisible :
Ans. (a) (b) (e) (i) are divisible.

2. Which of the following are divisible by 2?
(a) 8 and 14 are divisible by 2 (b) 12 is divisible by 2
(c) 20 is divisible by 2 (d) 110 and 180 are divisible by 2
(e) 628 is divisible by 2 (f) 2204 is divisble by 2

3. Which of the following are divisible by 10?
(a) 10 [∵ Ones place is 0, so it is divisible by 10]
(b) 20 [∵ Ones place is 0, so it is divisible by 10]
(c) 60 [∵ Ones place is 0, so it is divisible by 10]
(d) 120 [∵ Ones place is 0, so it is divisible by 10]
(e) 640 [∵ Ones place is 0, so it is divisible by 10]
(f) 1070 [∵ Ones place is 0, so it is divisible by 10]

4. Which of the following are divisible by 5?
(a) 5 and 25 [∵ Ones place is 5, so it is divisible by 5]
(b) 15 [∵ Ones place is 5, so it is divisible by 5]
(c) 30 and 55 [∵ Ones place is 0 and 5, so it is divisible by 5]
(d) 690 [Ones place is 0 so it is divisible by 5]

5. Which of the following are divisible by 3?
(a) 12 [∵ 1 + 2 = 3, which is divisible by 3] So 12 is divisible by 3.
(b) 84 [∵ 8 + 4 = 12, which is divisible by 3] So 84 is divisible by 3.
(c) 510 [∵ 5 + 1 + 0 = 6, which is divisible by 3]So 510 is divisible by 3.
(d) 1002 [∵ 1 + 0 + 0+ 2 = 3, which is divisible by 3] So 1002 is divisible by 3.
(e) 2010 [∵ 2 + 0 + 1+ 0 = 3, which is divisible by 3] So 2010 is divisible by 3.
(f) 2802 [∵ 2 + 8 + 0+ 2 = 12, which is divisible by 3] So 2802 is divisible by 3.

6. Find the smallest number. Which is added in the given number to be divisible by 3.
(a) 122 (b) 430

1 + 2 + 2 = 5
1 + 2 + 2 + **1** = 6 Which is divisible by 3.
So the smallest no. = 1

4 + 3 + 0 = 7
4 + 3 + 0 + 2 = 9, Which is divisible by 3.
So the smallest no. = 2

(c) 404
4 + 0 + 4 = 8
4 + 0 + 4 + 1 = 9, Which is divisible by 3
So the smallest no. = 1

(d) 322
3 + 2 + 2 = 7
3 + 2 + 2 + **2** = 9, Which is divisible by 3
So the smallest no. = 2.

7. Find the smallest number which is subtructed in the given number to be divisible by 5.

(a) 211
Here one's place is 1, To divisible by 5 its ones place should be 5 or 0 which is possible by subtracting 1, 211 – 1 = 210. So, the smallest no. = 1.

(b) 368
Here one's place is 8, To divisible by 5 its ones place should be 5 or 0 which is possible by subtracting 3, 368 – 3 = 365. So, the smallest no. = 3.

(c) 403
Here one's place is 3, To divisible by 5 its ones place should be 5 or 0 which is possible by subtracting 3, So 403 – 3 = 400. So, the smallest no. = 3.

(d) 624
Here, one's place is 4, To divisble by 5 its one's place should be 5 or 0 which is possible by subtracting 4, 624 – 4 = 620. So, the smallest no. = 4.

8. Find the smallest number which is added in the given number to be divisible by 10.

(a) 43
Here one's place digit is 3. To divisible by 10 its ones place digit should be zero. Which is possible by adding 7. 43 + 7 = 50. So, the smallest no. = 7.

(b) 507
Here one's place digit is 7. To divisible by 10 its ones place digit should be zero. Which is possible by adding 3. 507 + 3 = 510. So, the smallest no. = 3.

(c) 318
Here one's place digit is 8. To divisible by 10 its ones place digit should be zero. Which is possible by adding 2. 318 + 2 = 320. So, the smallest no. = 2.

(d) 545
Here one's place digit is 5. To divisible by 10 its ones place digit should be zero. Which is possible by adding 5. 545 + 5 = 550. So, the smallest no. = 5.

9. Find the smallest number which is subtracted in the given number to be divisible by 10.

(a) 21
Here one's place digit is 1. To divisible by 10 its one's place digit should be zero which possible by subtracting 1. 21 – 1 = 20. So, the smallest no. = 1.

(b) 65
Here one's place digit is 5. To divisible by 10 its one's place digit should be zero which possible by subtracting 5. 65 – 5 = 60. So, the smallest no. = 5.

(c) 121
Here one's place digit is 1. To divisible by 10 its one's place digit should be zero which possible by subtracting 1. 121 – 1 = 120. So, the smallest no. = 1.

(d) 404
Here one's place digit is 4. To divisible by 10 its one's place digit should be zero which possible by subtracting 4. 404 – 4 = 400. So, the smallest no. = 4.

Solve the following :

10. The numbers between 15 to 25 which are divisible by 3 are : 18, 21 and 24.

11. The two digit numbers which are divisible by 18 are : 36, 54, 72 and 90.

12. The numbers between 10 to 50 which are divisible by 15 are : 15, 30 and 45.

13. The numbers less than 20, which is divisible by both 3 and 5 is only 15.

14. The months of the year which days are divisible by 2 and 15 : April, June, September and November.

15. Find the numbers between 15 to 50. Which are divisible by both the given numbers.

(a) The numbers between 15 to 50 which are divisible by 3 and 6 : 18, 24, 30, 36, 42 and 48.

(b) The numbers between 15 to 50 which are divisible by 10 and 8 only 40

(c) The numbers between 15 to 50 which are divisible by 5 and 8 only 40.

(d) The numbers between 15 to 50 which are divisible by 2 and 5 : 20, 30, 40.

(e) The numbers between 15 to 50 which are divisible by 3 and 5 : 15, 30, 45.

(f) The numbers between 15 to 50 which are divisible by 5 and 10 : 20, 30, 40.

Exercise - 14

1. Fill in the blanks with prime or composite :

(a) 2 is a **prime** number. (b) 4 is a **composite** number.

(c) 11 is a **prime** number. (d) 38 is a **composite** number.

(e) 54 is a **composite** number. (f) 67 is a **prime** number.

(g) 651 is a **composite** number.

2. Fill in the blanks :

(a) 2 (b) 37 (c) 2 (d) 13 (e) 11, 13

3. Choose the prime number :

(a) Prime Numbers : 2, 3, 5, 7 (b) Prime Numbers : 31, 41, 61, 71

4. Choose the composite number :

(a) Composite Number : 33, 63 and 93 (b) Composite Number : 27, 57 and 77

Answer the following question :

5. (a) 2 is the smallest prime number. (b) 4 is the smallest composite number.

6. Prime numbers between 10 and 30 are : 11, 13, 17 and 19, 23, 29.

7. First five composite numbers = 4, 6, 9, 10 and 12.

8. The prime numbers between 40 and 50 and 41, 43, 47.

9. The composite numbers between 80 and 90 = 81, 82, 84, 85, 86, 87, 88.

10. Write true or false :

(a) True (b) False (c) False (d) False

11. Find the prime factors of the following :

(a) 6

2	6
3	3
	1

∴ Prime factors of 6 = 2 × 3

(b) 24

2	24
2	12
2	6
3	3
	1

∴ Prime factors of 24 = 2 × 2 × 2 × 3

(c) 36

2	36
2	18
3	9
3	3
	1

∴ Prime factors of 36 = 2 × 2 × 3 × 3

(d) 48

2	48
2	24
2	12
2	6
3	3
	1

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

(e) 72

2	72
2	36
2	18
3	9
3	3
	1

∴ Prime factors of 72 = 2 × 2 × 2 × 3 × 3

12. Find the prime factors of the given factors :

(a) 212

2	2 1 2
2	1 0 6
	5 3

∴ Prime factors of 212
= 2 × 2 × 53

(b) 250

2	2 5 0
5	1 2 5
5	2 5
	5

∴ Prime factors of 250
= 2 × 5 × 5 × 5

(c) 280

2	2 8 0
2	1 4 0
2	7 0
5	3 5
	7

∴ Prime factors of 280
= 2 × 2 × 2 × 5 × 7

(d) 240

2	2 4 0
2	1 2 0
2	6 0
2	3 0
3	1 5
	5

∴ Prime factors of 240
= 2 × 2 × 2 × 2 × 3 × 5

(e) 380

2	3 8 0
2	1 9 0
5	9 5
	1 9

∴ Prime factors of 380
= 2 × 2 × 5 × 19

13. Make factor tree for each of the following :

(a) 40 → 2, 20 → 2, 10 → 2, 5

(b) 45 → 3, 15 → 3, 5

(c) 56 → 2, 28 → 2, 14 → 2, 7

(d) 60 → 2, 30 → 2, 15 → 3, 5

14. Fill in the blanks in the given factor trees :

(a) 40, 10 (b) 35 (c) 12, 6

6. HIGHEST COMMON FACTOR

Exercise - 15

Find the HCF by finding factors :

1. 4 and 6
Factors of 4 = 1, 2, 4
Factors of 6 = 1, 2, 3
Common factors = 1, **2**
∴ HCF of 4 and 6 = 2

2. 16 and 18
Factors of 16 = 1, 2, 4, 8, 16
Factors of 18 = 1, 2, 3, 6, 9, 18
Common factors = 1, **2**
∴ HCF of 16 and 18 = 2

3. 6 and 8
Factors of 6 = 1, 2, 3, 6
Factors of 8 = 1, 2, 4, 8
Common factors = 1, **2**
∴ HCF of 6 and 8 = 2

4. 12 and 16
Factors of 12 = 1, 2, 3, 4, 6, 12
Factors of 16 = 1, 2, 4, 8, 16
Common factors = 1, 2, **4**
∴ HCF of 12 and 16 = 4

5. 16 and 20
Factors of 16 = 1, 2, 4, 8, 16
Factors of 20 = 1, 2, 4, 5, 10, 20
Common factors = 1, 2, **4**
∴ HCF of 16 and 20 = 4

6. 9 and 15
Factors of 9 = 1, 3, 9
Factors of 15 = 1, 3, 5, 15
Common factors = 1, **3**
∴ HCF of 9 and 15 = 3

7. 20 and 30
Factors of 20 = 1, 2, 4, 5, 10, 20

8. 5 and 6
Factors of 5 = 1, 5

Factors of 30 = 1, 2, 3, 5, 6, 10, 15, 30
Common factors = 1, 2, 5, **10**
∴ HCF of 20 and 30 = 10

Factors of 6 = 1, 2, 3, 6
Common factors = **1**
∴ HCF of 5 and 6 = 1

9. 2 and 3
Factors of 2 = 1, 2
Factors of 3 = 1, 3
Common factors = 1
∴ HCF of 2 and 3 = 1

10. 4, 6 and 8
Factors of 4 = 1, 2, 4
Factors of 6 = 1, 2, 3, 6
Factors of 8 = 1, 2, 4, 8
Common factors = 1, **2**
∴ HCF of 4, 6 and 8 = 2

11. 6, 9 and 18
Factors of 6 = 1, 2, 3, 6
Factors of 9 = 1, 3, 9
Factors of 18 = 1, 2, 3, 6, 9, 18
Common factors = 1, 2, **3**
∴ HCF of 6, 9 and 18 = 3

12. 10, 15 and 20
Factors of 10 = 1, 2, 5, 10
Factors of 15 = 1, 2, 3, 15
Factors of 20 = 1, 2, 4, 5, 10, 20
Common factors = 1, **5**
∴ HCF of 10, 15 and 20 = 5

13. 4, 8 and 10
Factors of 4 = 1, 2, 4
Factors of 8 = 1, 2, 4, 8
Factors of 10 = 1, 2, 5, 10
Common factors = 1, **2**
∴ HCF of 4, 8 and 10 = 2

14. 8, 12 and 16
Factors of 8 = 1, 2, 4, 8
Factors of 12 = 1, 2, 3, 4, 6, 12
Factors of 16 = 1, 2, 4, 8, 16
Common factors = 1, 2, **4**
∴ HCF of 8, 12 and 16 = 4

15. 2, 6 and 10
Factors of 2 = 1, 2; Factors of 6 = 1, 2, 3, 6; Factors of 10 = 1, 2, 5, 10
Common factors = 1, **2**
∴ HCF of 2, 6 and 10 = 2

Find the HCF by prime factorization method :

16. 18 and 28

2	18	2	28	18 = **2** × 3 × 3
3	9	2	14	28 = **2** × 2 × 7
3	3	7	7	∴ HCF of 18 and 28 = 2
	1		1	

17. 6 and 21

2	6	3	21	6 = 2 × **3**
3	3	7	7	21 = **3** × 7
	1		1	∴ HCF of 6 and 21 = 3

18. 14 and 35

2	14	5	35	14 = 2 × **7**
7	7	7	7	35 = 5 × 7
	1		1	

∴ HCF of 14 and 35 = 7

19. 30 and 45

2	30	3	45	30 = 2 × **3** × **5**
3	15	3	15	45 = **3** × 3 × **5**
5	5	5	5	∴ HCF of 30 and 45
	1		1	= 3 × 5 = 15

20. 54 and 81

2	54	3	81	54 = 2 × **3** × **3** × **3**
3	27	3	27	81 = 3 × **3** × **3** × **3**
3	9	3	9	∴ HCF of 54 and 81
3	3	3	3	= 3 × 3 × 3 = 27
	1		1	

21. 30 and 75

2	30	3	75	30 = 2 × **3** × **5**
3	15	5	25	75 = **3** × **5** × 5
5	5	5	5	∴ HCF of 30 and 75
	1		1	= 3 × 5 = 15

22. 12, 36 and 42

2 | 12	2 | 36	2 | 42
2 | 6	2 | 18	3 | 21
3 | 3	3 | 9	7 | 7
1	3 | 3	1
	1	

12 = **2** × 2 × **3; 36 = 2** × 2 × **3** × 3; 42 = **2** × **3** × 7

∴ HCF of 12, 36 and 42 = 2 × 3 = 6

23. 25, 45 and 55

5 | 25	3 | 45	5 | 55
5 | 5	3 | 15	11 | 11
1	5 | 5	1
	1	

25 **= 5** × 5; 45 = 3 × 3 × **5**; 55 = **5** × 11

∴ HCF of 25, 45 and 55 = 5

24. 36, 60 and 72

2 | 36	2 | 60	2 | 72
2 | 18	2 | 30	3 | 36
3 | 9	3 | 15	7 | 18
3 | 3	5 | 5	3 | 9
1	1	3 | 3
		1

Factors of 36 = 2 × 2 × 3 × 3

Factors of 60 = 2 × 2 × 3 × 5

Factors of 72 = 2 × 2 × 2 × 3 × 3

∴ HCF of 36, 60 and 72 = 2 × 2 × 3 = 12

Find the HCF by division method :

25. 36 and 15

$15\overline{)36}\,(2$; 30 ; $6\overline{)15}\,(2$; 12 ; $3\overline{)6}\,(2$; 6 ; $\times$

So the HCF = 3

26. 14 and 35

$14\overline{)35}\,(2$; 28 ; $7\overline{)14}\,(2$; 14 ; $\times$

So the HCF = 7

27. 30 and 42

$30\overline{)42}\,(1$; 30 ; $12\overline{)30}\,(2$; 24 ; $6\overline{)12}\,(2$; 12 ; $\times$

So the HCF = 6

28. 16 and 40

$16\overline{)40}\,(2$; 32 ; $8\overline{)16}\,(2$; 16 ; $\times$

So the HCF = 8

29. 10 and 25

$10\overline{)25}\,(2$; 20 ; $5\overline{)10}\,(2$; 10 ; $\times$

So the HCF = 5

30. 24 and 60

$24\overline{)60}\,(2$; 48 ; $12\overline{)24}\,(2$; 24 ; $\times$

So the HCF = 12

7. LOWEST COMMON MULTIPLE

Exercise - 16

1. Find the LCM of the following numbers :

(a) 2 and 4

Multiples of 2 = 2, 4, 6, 8, 10, 12, 14, 16, ...

Multiples of 4 = 4, 8, 12, 16, 20, ...

Common multiples = **4**, 8, 12, ...

∴ LCM of 2 and 4 = 4

(b) 4 and 6

Multiples of 4 = 4, 8, 12, 16, 20, ...

Multiples of 6 = 6, 12, 18, 24, 30, 36, ..

Common multiples = **12**, 24, 36, ...

∴ LCM of 4 and 6 = 12

(c) 6 and 8

Multiples of 6 = 6, 12, 18, 24, 30, 36, 42, 48..

(d) 8 and 10

Multiples of 8 = 8, 16, 24, 32, **40**, 48,

Multiples of 8 = 8, 16, 24, 32, 40, 48 ....
Common multiples = 24, 48, ...
∴ LCM of 6 and 8 = 24

(e) 12 and 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

(g) 15 and 25
Multiples of 15 = 15, 30, 45, 60, 75, 90, 105, 120, 135, 150 ...
Multiples of 25 = 25, 50, 75, 100, 125, 150, ...
Common multiples = **75**, 150, ...
∴ LCM of 15 and 25 = 75

56, 64, 72, 80, ...
Multiples of 10= 10, 20, 30, **40**, 50, 60, 70, 80 ...
Common multiples = **40**, 80,....
∴ LCM of 8 and 10 = 40

(f) 10 and 15
Multiples of 10 = 10, 20, **30**, 40, 50, ..
Multiples of 15 = 15, **30**, 45, 60, ...
Common multiples of 10 and 15 = 30, 60, ...
∴ LCM of 10 and 15 = 30

(h) 10 and 25
Multiples of 10 = 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, ...
Multiples of 25 = 25, 50, 75, 100, 125, 150, ...
Common multiples = **50**, 150, ...
∴ LCM of 10 and 25 = 50

(i) 12 and 50
Multiples of 12 = 12, 24, 36, 48, 60, 72, 84, 96, 108, 120, ...
Multiples of 50 = 50, 100, 150, 200, 250, 300, ...
∴ LCM 12 and 50 = 300

2. Find the LCM of the following numbers :

(a) 4, 6 and 8

2	4, 6, 8
2	2, 3, 4
2	1, 3, 2
3	1, 3, 1
	1, 1, 1

∴ LCM of 4, 6 and 8 = 2 × 2 × 2 × 3 = 24

(b) 10, 12 and 15

2	10, 12, 15
2	5, 6, 15
3	5, 3, 15
5	5, 1, 5
	1, 1, 1

∴ LCM of 10, 12 and 15 = 2 × 2 × 3 × 5 = 60

(c) 8, 10 and 16

2	8, 10, 16
2	4, 5, 8
2	2, 5, 4
2	1, 5, 2
5	1, 5, 1
	1

∴ LCM of 8, 10 and 16 = 2 × 2 × 2 × 2 × 5 = 80

(d) 10, 20 and 30

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

∴ LCM of 10, 20 and 30 = 2 × 2 × 3 × 5 = 60

(e) 12, 18 and 24

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

∴ LCM of 12, 18 and 24 = 2 × 2 × 2 × 3 × 3 = 72

(f) 20, 25 and 30

2	20, 25, 30
2	10, 25, 15
3	5, 25, 15
5	5, 25, 5
5	1, 5, 1
	1, 1, 1

∴ LCM of 20, 25 and 30 = 2 × 2 × 3 × 5 × 5 = 300

3. Find the LCM of the following numbers :

(a) 40 and 70

2	40, 70
2	20, 35
2	10, 35
5	5, 35
	1, 7
	1, 1

∴ LCM of 40 and 70
= 2 × 2 × 2 × 5 × 7 = 280

(b) 50 and 15

2	50, 15
3	25, 15
5	25, 5
5	5, 1
	1, 1

∴ LCM of 50 and 15
= 2 × 3 × 5 × 5 = 150

(c) 80 and 120

2	80, 120
2	40, 60
2	20, 30
2	10, 15
3	5, 15
5	5, 5
	1, 1

∴ LCM of 80 and 120
= 2 × 2 × 2 × 2 × 3 × 5 = 240

(d) 20, 160 and 180

2	20, 160, 180
2	10, 80, 90
2	5, 40, 45
2	5, 20, 45
2	5, 10, 45
3	5, 5, 45
3	5, 5, 15
5	5, 5, 5
	1, 1, 1

∴ LCM of 20, 160 and 180
= 2 × 2 × 2 × 2 × 2 × 3 × 3 × 5 = 1440

(e) 200, 300 and 400

2	200, 300, 400
2	100, 150, 200
2	50, 75, 100
2	25, 75, 50
3	25, 75, 25
5	25, 25, 25
5	5, 5, 5
	1, 1, 1

∴ LCM of 200, 300 and 400
= 2 × 2 × 2 × 2 × 3 × 5 × 5 = 1200

(f) 150, 210 and 300

2	150, 210, 300
2	75, 105, 150
3	75, 105, 75
5	25, 35, 25
5	5, 7, 5
7	1, 7, 1
	1, 1, 1

∴ LCM of 150, 210 and 300
= 2 × 2 × 3 × 5 × 5 × 7 = 2100

8. POWER AND SQUARE ROOT

Exercise - 17

Write the following in power form :

(1) $5 \times 5 \times 5 = 5^3$

(2) $3 \times 3 \times 3 \times 3 \times 3 \times 3 = 3^6$

(3) $4 \times 4 \times 9 \times 9 \times 9 = 4^2 \times 9^3$

(4) $5 \times 5 \times 5 \times 10 \times 10 = 5^3 \times 10^2$

(5) $7 \times 7 \times 14 \times 7 \times 28 = 7^3 \times 14 \times 28$

(6) $6 \times 6 \times 6 \times 6 \times 3 \times 3 \times 3 \times 2 = 6^4 \times 3^3 \times 2$

(7) $2 \times 2 \times 16 \times 16 = 2^2 \times 16^2$

(8) $7 \times 7 \times 7 \times 2 \times 2 \times 2 \times 14 \times 14 = 7^3 \times 2^3 \times 14^2$

Find the value of the following :

(9) $3^5 \times 2^2 \times 4^5$
$= 3 \times 3 \times 3 \times 3 \times 3 \times 2 \times 2 \times 4 \times 4 \times 4 \times 4 \times 4$
$= 243 \times 4 \times 1024 = 995328$

(10) $10^3 \times 5 \times 4^3$
$= 10 \times 10 \times 10 \times 5 \times 4 \times 4 \times 4$
$= 1000 \times 5 \times 64 = 320000$

(11) $10^2 \times 5^4$
$= 10 \times 10 \times 5 \times 5 \times 5 \times 5$
$= 100 \times 625 = 62500$

(12) $4^4 \times 2^5$
$= 4 \times 4 \times 4 \times 4 \times 2 \times 2 \times 2 \times 2 \times 2$
$= 256 \times 32 = 8192$

Put the signs with <, > or =

(13) $3^4 > 4^3$ (14) $10^4 = 10000$ (15) $10^3 > 895$

(16) $2^8 > 250$ (17) $9^3 < 3^9$ (18) $1000 < 10^5$

Find square and cube of the given numbers :

(19) 15

Square of $15 = 15^2 = 15 \times 15 = 225$

Cube of $15 = 15^3 = 15 \times 15 \times 15 = 3375$

(20) 12

Square of $12 = 12^2 = 12 \times 12 = 144$

Cube of $12 = 12^3 = 12 \times 12 \times 12 = 1728$

(21) 20

Square of $20 = 20^2 = 20 \times 20 = 400$

Cube of $20 = 20^3 = 20 \times 20 \times 20 = 8000$

(22) 10

Square of $10 = 10^2 = 10 \times 10 = 100$

Cube of $10 = 10^3 = 10 \times 10 \times 10 = 1000$

(23) 45

Square of $45 = 45^2 = 45 \times 45 = 2025$

Cube of $45 = 45^3 = 45 \times 45 \times 45 = 91125$

(24) 17

Square of $17 = 17^2 = 17 \times 17 = 289$

Cube of $17 = 17^3 = 17 \times 17 \times 17 = 4913$

(25) 25

Square of $25 = 25^2 = 25 \times 25 = 625$

Cube of $25 = 25^3 = 25 \times 25 \times 25 = 15625$

(26) 9

Square of $9 = 9^2 = 9 \times 9 = 81$

Cube of $9 = 9^3 = 9 \times 9 \times 9 = 729$

(27) 11

Square of $11 = 11^2 = 11 \times 11 = 121$

Cube of $11 = 11^3 = 11 \times 11 \times 11 = 1331$

(28) 13

Square of $13 = 13^2 = 13 \times 13 = 169$

Cube of $13 = 13^3 = 13 \times 13 \times 13 = 2197$

Exercise - 18

Find the Square root of the following numbers :

1. 625

5	625
5	125
5	25
5	5
	1

$\therefore \sqrt{625} = \sqrt{5 \times 5 \times 5 \times 5} = 5 \times 5 = 25$

2. 225

3	225
3	75
5	25
5	5
	1

$\therefore \sqrt{225} = \sqrt{3 \times 3 \times 5 \times 5} = 3 \times 5 = 15$

3. 289

17	289
17	17
	1

$\therefore \sqrt{289} = \sqrt{17 \times 17} = 17$

4. 121

11	121
11	11
	1

$\therefore \sqrt{121} = \sqrt{11 \times 11} = 11$

5. 169

13	169
13	13
	1

$\therefore \sqrt{169} = \sqrt{13 \times 13} = 13$

6. 5184

2	5184
2	2592
2	1296
2	648
2	324
2	162
3	81
3	27
3	9
3	3
	1

$\therefore \sqrt{5184} = \sqrt{2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3}$

$= 2 \times 2 \times 2 \times 3 \times 3 = 72$

7. 3025

5	3025
5	605
11	121
11	11
	1

$\therefore \sqrt{3025} = \sqrt{5\times5\times11\times11}$
$= 5\times11 = 55$

8. 11025

3	11025
3	3675
5	1225
5	245
7	49
7	7
	1

9. 1225

5	1225
5	245
7	49
7	7
	1

$\therefore \sqrt{1225} = \sqrt{5\times5\times7\times7}$
$= 5\times7 = 35$

$\therefore \sqrt{11025} = \sqrt{3\times3\times5\times5\times7\times7}$
$= 3\times5\times7 = 105$

10. 2601

3	2601
3	867
17	289
17	17
	1

$\therefore \sqrt{2061} = \sqrt{3\times3\times17\times17}$
$= 3\times17 = 51$

11. 1024

2	1024
2	512
2	256
2	128
2	64
2	32
2	16
2	8
2	4
2	2
	1

12. 7056

2	7056
2	3528
2	1764
2	882
3	441
3	147
7	49
7	7
	1

$\therefore \sqrt{7056} = \sqrt{2\times2\times2\times2\times3\times3\times7\times7}$
$= 2\times2\times3\times7$

$\therefore \sqrt{1024} = \sqrt{2\times2\times2\times2\times2\times2\times2\times2\times2\times2}$
$= 2\times2\times2\times2\times2 = 32$

13. Total No. of students = 3025
We have, No. of students = No. of rows
So the no. of students in a row = $\sqrt{3025} = \sqrt{5\times5\times11\times11} = 5\times11 = 55$
Hence, There are 55 students in a row.

Formative Assessment - 1 (Lesson 1 to 8)

1. Write the Hindu-Arabic numbers for the following :
(a) MDCXXIV = 1000 + 500 + 100 + 10 + 10 + 4 = 1624
(b) MDCCCLXV = 1000 + 500 + 100 + 100 + 100 + 50 + 10 + 5 = 1865
(c) CCXCIX = 100 + 100 + 90 + 9 = 299
(d) DCCLXXVI = 500 + 100 + 100 + 50 + 10 + 10 + 6 = 776

2. Write the predecessor of the following numbers :
(a) 100001 = 100001 – 1 = 100000
(b) 10102 = 10102 – 1 = 10101
(c) 69760 = 69760 – 1 = 69759
(d) 599800 = 599800 – 1 = 599799
(e) 143010 = 143010 – 1 = 143009
(f) 54331 = 54331 – 1 = 54330
(g) 643210 = 643210 – 1 = 643209
(h) 245430 = 245430 – 1 = 245429

3. Find the product :
(a) $1000\times35192 = 35192000$
(b) $356827\times310 = 110616370$
(c) $637128\times31 = 19750968$
(d) $3159\times257 = 811863$

4. Divide and find the quotient and the remainder. Also verify the answer :

(a) $548967 \div 88 = 6238$, Remainder = 23
Dividend = Divisor × Quotient + Remainder
$548967 = 88 \times 6238 + 23 = 548944 + 23 = 548967$
Hence, the answer is verified.

(b) $298795 \div 1000 = 298$, Remainder = 795
Dividend = Divisor × Quotient + Remainder
$= 298795 = 1000 \times 298 + 795 = 298000 + 795 = 298795$
Hence, the answer is verified.

(c) $80000000 \div 10000 = 8000$, Remainder = 0
Dividend = Divisor × Quotient + Remainder
$= 80000000 = 10000 \times 8000 + 0 = 80000000 + 0 = 80000000$
Hence, the answer is verified.

(d) 5497843 by 995 = $5497843 \div 995 = 5525$
Dividend = Divisor × Quotient + Remainder
$5497843 = 995 \times 5525 + 468 = 549375 + 468 = 5497843$
Hence, the answer is verified.

5. Which of the following are divisible by 2?

(a) 8 and 14 are divisible by 2 (b) 12 is divisible by 2
(c) 20 is divisible by 2 (d) 110 and 180 are divisible by 2

6. Find the HCF by finding factors :

(a) 2 and 3 (b) 4, 6 and 8 (c) 6, 9 and 18 (d) 10, 15 & 20

(a) 2 and 3
Factors of 2 = 1, 2
Factors of 3 = 1, 3
Common factors = 1
$\therefore$ HCF of 2 and 3 = 1

(b) 4, 6 and 8
Factors of 4 = 1, 2, 4
Factors of 6 = 1, 2, 3, 6
Factors of 8 = 1, 2, 4, 8
Common factors = 1, **2**
$\therefore$ HCF of 4, 6 and 8 = 2

(c) 6, 9 and 18
Factors of 6 = 1, 2, 3, 6
Factors of 9 = 1, 3, 9
Factors of 18 = 1, 2, 3, 6, 9, 18
Common factors = 1, 2, **3**
$\therefore$ HCF of 6, 9 and 18 = 3

(d) 10, 15 and 20
Factors of 10 = 1, 2, 5, 10
Factors of 15 = 1, 2, 3, 15
Factors of 20 = 1, 2, 4, 5, 10, 20
Common factors = 1, **5**
$\therefore$ HCF of 10, 15 and 20 = 5

7. Do yourself.

8. Find the Square root of the following numbers :

(a) 625

5	625
5	125
5	25
5	5
	1

$\therefore \sqrt{625} = \sqrt{5 \times 5 \times 5 \times 5} = 5 \times 5 = 25$

(b) 225

3	225
3	75
5	25
5	5
	1

$\therefore \sqrt{225} = \sqrt{3 \times 3 \times 5 \times 5} = 3 \times 5 = 15$

(c) 289

17	289
17	17
	1

$\therefore \sqrt{289} = \sqrt{17 \times 17} = 17$

(d) 121

11	121
11	11
	1

$\therefore \sqrt{121} = \sqrt{11 \times 11} = 11$

(e) 169

13	169
13	13
	1

$\therefore \sqrt{169} = \sqrt{13 \times 13} = 13$

(f) 5184

2	5184
2	2592
2	1296
2	648
2	324
2	162
3	81
3	27
3	9
3	3
	1

$\therefore$

$\sqrt{5184} = \sqrt{2\times2\times2\times2\times2\times2\times3\times3\times3\times3\times3\times3}$

$= 2\times2\times2\times3\times3 = 72$

9. Is the first number the factor of second number?
(a) Yes, 6 is the factor of 18 (b) No, 7 is not the factor of 40
(c) Yes, 8 is the factor of 56 (d) No, 12 is not the factor of 64

10. No. of rats = 342159374, No. of cats = 59345781
Total no. of rats and cats = 342159374 + 59345781 = 401505155
$\therefore$ There are 401505155 rats and cats in the jugle.

11. The cost of per metre linen = ₹ 378
The cost of 857 metre linen = ₹ 378 × 857
So, the total cost of 857 metre of linen is ₹ 323946.

12. The numbers between 15 to 25 which are divisible by 3 are : 18, 21 and 24.

13. The number name of 1,04,003 is : One lakh four thousand three.
Also, 300401 = Three lakh four hundred one.

14. No. of wheat plants = 13425937, No. of rice plants = 12159432
No. of maize plants = 781396
Total no. of plants = 26366765
$\therefore$ The total no. of plants of that field is 26366765.

15. Cost of 1 fan = ₹ 436
No. of fans for ₹ 23108 = 23108 ÷ 436 = 53
Hence, A dealer can purchase 53 fans.

9. MULTPLICATION AND DIVISION OF FRACTIONS

Exercise - 19

Multiply the following :

1. (a) $\frac{6}{5}$ by $7 = \frac{6}{5}\times7 = \frac{6\times7}{5} = \frac{42}{5}$

(b) $\frac{7}{9}$ by $6 = \frac{7}{9}\times6 = \frac{7\times6}{9} = \frac{42}{9}$

(c) $\frac{5}{7}$ by $8 = \frac{5}{7}\times8 = \frac{5\times8}{7} = \frac{40}{7}$

(d) $\frac{8}{11}$ by $6 = \frac{8}{11}\times6 = \frac{8\times6}{11} = \frac{48}{11}$

(e) $\frac{14}{4}$ by $7 = \frac{14}{4}\times7 = \frac{14\times7}{4} = \frac{98}{4}$

(f) $\frac{12}{7}$ by $19 = \frac{12}{7}\times19 = \frac{12\times19}{7} = \frac{228}{7}$

Find the value of the following :

2. (a) $\frac{6}{5}\times 4=\frac{6\times 4}{5}=\frac{24}{5}$ (b) $\frac{7}{9}\times 5=\frac{7\times 5}{9}=\frac{35}{9}$ (c) $\frac{3}{11}\times 9=\frac{3\times 9}{11}=\frac{27}{11}$

(d) $\frac{15}{12}\times 14=\frac{15\times 14}{12}=\frac{35}{2}$ (e) $\frac{13}{4}\times 8=\frac{13\times 8}{4}=26$ (f) $\frac{6}{11}\times 9=\frac{6\times 9}{11}=\frac{54}{11}$

Simplify the following :

3. (a) $2\frac{1}{2}\times 7=\frac{5}{2}\times 7=\frac{5\times 7}{2}=\frac{35}{2}$ (b) $5\frac{1}{14}\times 7=\frac{71}{14}\times 7=\frac{71}{2}$

(c) $8\frac{1}{12}\times 9=\frac{97}{12}\times 9=\frac{97\times 3}{4}=\frac{291}{4}$ (d) $3\frac{3}{5}\times 9=\frac{18}{5}\times 9=\frac{18\times 9}{5}=\frac{162}{5}$

(e) $2\frac{1}{8}\times 27=\frac{17}{8}\times 27=\frac{17\times 27}{8}=\frac{459}{8}$ (f) $1\frac{3}{5}\times 8=\frac{8}{5}\times 8=\frac{8\times 8}{5}=\frac{64}{5}$]

(g) $18\times 6\frac{1}{3}=18\times\frac{19}{3}=6\times 19=114$ (h) $14\times 2\frac{2}{3}\times 7=14\times\frac{8}{3}\times 7=\frac{14\times 8\times 7}{3}=\frac{784}{3}$

Exercise - 20

Multiply the following fractions :

1. (a) $\frac{2}{5}$ by $\frac{2}{6}=\frac{2}{5}\times\frac{2}{6}=\frac{1\times 2}{5\times 3}=\frac{2}{15}$ (b) $\frac{5}{7}$ by $\frac{7}{3}=\frac{5}{7}\times\frac{7}{3}=\frac{5\times 1}{1\times 3}=\frac{5}{3}$

(c) $\frac{5}{7}$ by $\frac{8}{3}=\frac{5\times 8}{7\times 3}=\frac{40}{21}$ (d) $\frac{4}{7}$ by $\frac{3}{11}=\frac{4\times 3}{7\times 11}=\frac{12}{77}$

(e) $\frac{6}{21}$ by $\frac{8}{11}=\frac{6}{21}\times\frac{8}{11}=\frac{2\times 8}{7\times 11}=\frac{16}{77}$ (f) $\frac{15}{8}$ by $\frac{9}{10}=\frac{15}{8}\times\frac{9}{10}=\frac{3\times 9}{8\times 2}=\frac{27}{16}$

Find the product of following fractions :

2. (a) $\frac{3}{3}\times\frac{6}{9}=\frac{18}{27}=\frac{2}{3}$ (b) $\frac{6}{5}\times\frac{5}{8}=\frac{30}{40}=\frac{3}{4}$

(c) $\frac{7}{11}\times\frac{9}{5}=\frac{63}{55}$ (d) $\frac{3}{15}\times\frac{4}{8}=\frac{12}{120}=\frac{1}{10}$

Solve the following fractions :

3. (a) $1\frac{1}{2}\times\frac{2}{2}=\frac{3}{2}\times\frac{2}{2}=\frac{3}{2}$ (b) $4\frac{6}{16}\times\frac{16}{26}=\frac{70}{16}\times\frac{16}{26}=\frac{70}{26}=\frac{35}{13}$

(c) $2\frac{1}{2}\times\frac{7}{8}=\frac{5}{2}\times\frac{7}{8}=\frac{35}{16}$ (d) $\frac{9}{7}\times 1\frac{2}{3}=\frac{9}{7}\times\frac{5}{3}=\frac{3}{7}\times 5=\frac{15}{7}$

(e) $\frac{5}{6}\times 2\frac{3}{4}=\frac{5}{6}\times\frac{11}{4}=\frac{55}{24}$ (f) $2\frac{1}{4}\times 1\frac{6}{8}=\frac{9}{4}\times\frac{14}{8}=\frac{9\times 7}{2\times 8}=\frac{63}{16}$

Solve the following fractions :

4. (a) $2\frac{1}{2}\times 3\frac{2}{4}=\frac{5}{2}\times\frac{14}{4}=\frac{5\times 7}{4}=\frac{35}{4}=8\frac{3}{4}$ (b) $1\frac{1}{2}\times 2\frac{2}{3}=\frac{3}{2}\times\frac{8}{3}=\frac{8}{2}=4$

(c) $3\frac{4}{5}\times 1\frac{3}{4}=\frac{19}{5}\times\frac{7}{4}=\frac{133}{20}=6\frac{13}{20}$ (d) $2\frac{4}{9}\times 2\frac{2}{5}=\frac{22}{9}\times\frac{12}{5}=\frac{22\times 4}{3\times 5}=\frac{88}{15}=5\frac{13}{15}$

(e) $2\frac{5}{13}\times 3\frac{6}{20}=\frac{31}{13}\times\frac{66}{20}=\frac{31\times 33}{13\times 10}=\frac{1023}{130}=7\frac{113}{130}$

(f) $2\frac{3}{7}\times 1\frac{6}{8}=\frac{17}{7}\times\frac{14}{8}=\frac{17\times 2}{8}=\frac{17}{4}=4\frac{1}{4}$ (g) $2\frac{6}{7}\times 1\frac{2}{5}=\frac{20}{7}\times\frac{7}{5}=\frac{20}{5}=4$

(h) $1\frac{2}{8}\times 1\frac{2}{5}=\frac{10}{8}\times\frac{7}{5}=\frac{7}{4}=1\frac{3}{4}$

Exercise - 21

Write the reciprocal of the following fractions :

1. $\frac{7}{9}=\frac{9}{7}$ **2.** $\frac{3}{5}=\frac{5}{3}$ **3.** $\frac{6}{10}=\frac{10}{6}$ **4.** $\frac{4}{11}=\frac{11}{4}$ **5.** $1\frac{5}{6}=\frac{11}{6}=\frac{6}{11}$

6. $6\frac{4}{8}=\frac{52}{8}=\frac{8}{52}$ **7.** $1\frac{2}{7}=\frac{9}{7}=\frac{7}{9}$ **8.** $6=\frac{1}{6}$ **9.** $\frac{3}{8}=\frac{8}{3}$

10. $\frac{4}{13}=\frac{13}{4}$

Fill in the blanks :

11. Reciprocal of $\frac{11}{3} = \frac{3}{11}$ **12.** $\frac{3}{6} \times \frac{5}{2} = \frac{15}{12} = \frac{12}{15}$ **13.** $\frac{5}{7} \times \left(\frac{7}{5}\right) = 1$

14. $\frac{6}{11} \times \left(\frac{11}{6}\right) = 1$ **15.** $3\frac{1}{3} \times \left(\frac{3}{10}\right) = 1$ **16.** $18 \times \left(\frac{1}{18}\right) = 1$

Exercise - 22

Divide the following :

1. $\frac{1}{2}$ by $3 = \frac{1}{2} \div 3 = \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$

2. $\frac{2}{3}$ by $6 = \frac{2}{3} \div 6 = \frac{2}{3} \times \frac{1}{6} = \frac{1}{3 \times 3} = \frac{1}{9}$

3. $\frac{3}{5}$ by $6 = \frac{3}{5} \div 6 = \frac{3}{5} \times \frac{1}{6} = \frac{1}{5 \times 2} = \frac{1}{10}$

4. $\frac{4}{5}$ by $8 = \frac{4}{5} \div 8 = \frac{4}{5} \times \frac{1}{8} = \frac{1}{5 \times 2} = \frac{1}{10}$

5. $\frac{6}{8}$ by $4 = \frac{6}{8} \div 4 = \frac{6}{8} \times \frac{1}{4} = \frac{3 \times 1}{4 \times 4} = \frac{3}{16}$

6. $\frac{7}{11}$ by $8 = \frac{7}{11} \div 8 = \frac{7}{11} \times \frac{1}{8} = \frac{7}{88}$

Solve the following :

7. $\frac{2}{5} \div 3 = \frac{2}{5} \times \frac{1}{3} = \frac{2}{15}$

8. $\frac{3}{4} \div 4 = \frac{3}{4} \times \frac{1}{4} = \frac{3}{16}$

9. $\frac{5}{21} \div 11 = \frac{5}{21} \times \frac{1}{11} = \frac{5}{231}$

10. $\frac{7}{4} \div 7 = \frac{7}{4} \times \frac{1}{7} = \frac{1}{4}$

11. $\frac{8}{13} \div 2 = \frac{8}{13} \times \frac{1}{2} = \frac{4 \times 1}{13} = \frac{4}{13}$

12. $\frac{12}{23} \div 13 = \frac{12}{23} \times \frac{1}{13} = \frac{12}{299}$

13. $\frac{3}{13} \div 4 = \frac{3}{13} \times \frac{1}{4} = \frac{3}{52}$

14. $\frac{7}{8} \div 10 = \frac{7}{8} \times \frac{1}{10} = \frac{7}{80}$

15. $\frac{12}{19} \div 8 = \frac{12}{19} \times \frac{1}{8} = \frac{3 \times 1}{19 \times 2} = \frac{3}{38}$

16. $1\frac{3}{4} \div 2 = \frac{7}{4} \times \frac{1}{2} = \frac{7}{8}$

17. $2\frac{1}{5} \div 12 = \frac{11}{5} \times \frac{1}{12} = \frac{11}{60}$

18. $1\frac{1}{2} \div 4 = \frac{3}{2} \times \frac{1}{4} = \frac{3}{8}$

19. $2\frac{5}{11} \div 3 = \frac{27}{11} \times \frac{1}{3} = \frac{9}{11}$

20. $3\frac{2}{7} \div 37 = \frac{23}{7} \times \frac{1}{37} = \frac{23}{259}$

21. $5\frac{1}{3} \div 19 = \frac{16}{3} \times \frac{1}{19} = \frac{16}{57}$

Exercise - 23

Solve the following fractions :

1. $\frac{2}{4} \div \frac{6}{7} = \frac{2}{4} \times \frac{7}{6} = \frac{1}{4} \times \frac{7}{3} = \frac{7}{12}$

2. $\frac{2}{3} \div \frac{4}{3} = \frac{2}{3} \times \frac{3}{4} = \frac{2}{4} = \frac{1}{2}$

3. $\frac{12}{49} \div \frac{6}{8} = \frac{12}{49} \times \frac{8}{6} = \frac{2 \times 8}{49} = \frac{16}{49}$

4. $\frac{5}{48} \div \frac{10}{24} = \frac{5}{48} \times \frac{24}{10} = \frac{24}{48 \times 2} = \frac{1}{2 \times 2} = \frac{1}{4}$

5. $\frac{7}{9} \div \frac{8}{21} = \frac{7}{9} \times \frac{21}{8} = \frac{7}{3} \times \frac{7}{8} = \frac{49}{24}$

6. $\frac{5}{7} \div \frac{2}{5} = \frac{5}{7} \times \frac{5}{2} = \frac{25}{14}$

7. $\frac{5}{7} \div \frac{14}{9} = \frac{5}{7} \times \frac{9}{14} = \frac{45}{98}$

8. $\frac{10}{29} \div \frac{25}{38} = \frac{10}{29} \times \frac{38}{25} = \frac{2}{29} \times \frac{38}{5} = \frac{76}{145}$

9. $\frac{3}{28} \div \frac{4}{14} = \frac{3}{28} \times \frac{14}{4} = \frac{3}{2} \times \frac{1}{4} = \frac{3}{8}$

10. $1\frac{1}{2} \div 2\frac{1}{4} = \frac{3}{2} \div \frac{9}{4} = \frac{3}{2} \times \frac{4}{9} = \frac{2}{3}$

11. $2\frac{4}{5} \div 2\frac{1}{4} = \frac{14}{5} \div \frac{9}{4} = \frac{14}{5} \times \frac{4}{9} = \frac{56}{45}$

12. $1\frac{2}{3} \div 6\frac{3}{4} = \frac{5}{3} \div \frac{27}{4} = \frac{5}{3} \times \frac{4}{27} = \frac{20}{81}$

13. $3\frac{2}{10} \div 5\frac{1}{2} = \frac{32}{10} \div \frac{11}{2} = \frac{32}{10} \times \frac{2}{11} = \frac{32}{5 \times 11} = \frac{32}{55}$

14. $10\frac{1}{5} \div 4\frac{1}{3} = \frac{51}{5} \div \frac{13}{3} = \frac{51}{5} \times \frac{3}{13} = \frac{153}{65}$

15. $5\frac{9}{10} \div 2\frac{4}{5} = \frac{59}{10} \div \frac{14}{5} = \frac{59}{10} \times \frac{5}{14} = \frac{59}{28}$

16. $8\frac{3}{11} \div 4\frac{1}{3} = \frac{91}{11} \div \frac{13}{3} = \frac{91}{11} \times \frac{3}{13} = \frac{7}{11} \times \frac{3}{1} = \frac{21}{11}$

17. $10\frac{1}{5} \div 4\frac{1}{4} = \frac{51}{5} \div \frac{17}{4} = \frac{51}{5} \times \frac{4}{17} = \frac{3}{5} \times \frac{4}{1} = \frac{12}{5}$

18. $4\frac{4}{9} \div 2\frac{2}{5} = \frac{40}{9} \div \frac{12}{5} = \frac{40}{9} \times \frac{5}{12} = \frac{10}{9} \times \frac{5}{3} = \frac{50}{27}$

19. $8\frac{2}{3} \div 4\frac{1}{3} = \frac{26}{3} \div \frac{13}{3} = \frac{26}{3} \times \frac{3}{13} = 2 \times 1 = 2$

20. $5\frac{3}{5} \div 3\frac{11}{15} = \frac{28}{5} \div \frac{56}{15} = \frac{28}{5} \times \frac{15}{56} = \frac{3}{2}$

Divide the following fractions :

21. $\frac{4}{5}$ by $\frac{4}{3} = \frac{4}{5} \div \frac{4}{3} = \frac{4}{5} \times \frac{3}{4} = \frac{3}{5}$

22. $\frac{7}{6}$ by $\frac{6}{7} = \frac{7}{6} \div \frac{6}{7} = \frac{7}{6} \times \frac{7}{6} = \frac{49}{36}$

23. $\frac{4}{8}$ by $\frac{4}{7} = \frac{4}{8} \div \frac{4}{7} = \frac{4}{8} \times \frac{7}{4} = \frac{7}{8}$

24. $\frac{63}{13}$ by $2\frac{1}{4} = \frac{63}{13} \div \frac{9}{4} = \frac{63}{13} \times \frac{4}{9} = \frac{28}{13}$

25. $\frac{72}{12}$ by $9\frac{3}{7} = \frac{72}{12} \div \frac{66}{7} = \frac{72}{12} \times \frac{7}{66} = \frac{7}{11}$

26. $\frac{7}{6}$ by $\frac{12}{5} = \frac{7}{6} \div \frac{12}{5} = \frac{7}{6} \times \frac{5}{12} = \frac{35}{72}$

Exercise - 24

Find the value :

1. (a) Divide $\frac{1}{8}$ by 6
$= \frac{1}{8} \div 6 = \frac{1}{8} \times \frac{1}{6} = \frac{1}{48}$

(b) Divide $\frac{2}{20}$ by 20
$= \frac{2}{20} \div 20 = \frac{2}{20} \times \frac{1}{20} = \frac{1}{200}$

(c) Divide $1\frac{3}{25}$ by 7
$= 1\frac{3}{25} \div 7 = \frac{28}{25} \times \frac{1}{7} = \frac{4}{25}$

(d) Divide $\frac{4}{5}$ by 2
$= \frac{4}{5} \div 2 = \frac{4}{5} \times \frac{1}{2} = \frac{2}{5}$

(e) Divide $\frac{5}{6}$ by $\frac{7}{15}$
$= \frac{5}{6} \div \frac{7}{15} = \frac{5}{6} \times \frac{15}{7} = \frac{5}{2} \times \frac{5}{7} = \frac{25}{14}$

(f) Divide $\frac{3}{5}$ kg by $\frac{5}{7}$
$= \frac{3}{5}\text{Kg} \div \frac{5}{7} = \frac{3}{5} \times \frac{7}{5} = \frac{21}{25}$

Fill in the blanks :

2. (a) ₹ 2 of $\frac{2}{5} = 200 \times \frac{2}{5} = 40\text{ P} \times 2 = 80\text{ P}$

(b) ₹ 7 of $\frac{1}{25} = 700 \times \frac{1}{25} = 28\text{ P} \times 1 = 28\text{ P}$

(c) $\frac{2}{5}$ of 85 $l = \frac{2}{5} \times 85 = 2 \times 17 = 34\ l$

(d) $\frac{1}{4}$ of 40 kg $= \frac{1}{4} \times 40 = 1 \times 10 = 10$ kg

(e) $\frac{2}{5}$ of 1 kg $= \frac{2}{5} \times 1000$ gm $= 2 \times 200 = 400$ gm

(f) $\frac{1}{100}$ of 60 kg $= \frac{1}{100} \times 60000 = 600$ gm

(g) $\frac{1}{8}$ of 80 m $= \frac{1}{8} \times 80 = 1 \times 10$ m $= 10$m

(h) $\frac{3}{8}$ of 2 m $= \frac{3}{8} \times 200 = 3 \times 25 = 75$ cm

3. Total length of cloth = 40 m
Cloth used $= \frac{4}{5}$ of 40 m $= \frac{4}{5} \times 40 = 4 \times 8 = 32$ m
Thus, he used 32 m cloth to make sheet.

4. Total no. of pages = 320
Punit reads $= \frac{7}{8}$ of 320
$= \frac{7}{8} \times 320 = 7 \times 40 = 280$

5. Seema had = ₹ 600
She used $= \frac{1}{8}$ of $600 = \frac{1}{8} \times 600 = 75$ ₹
Thus, She used ₹ 75.

6. Distance covered in an hour $= 12\frac{2}{3}$ km
Distance covered in $\frac{7}{19}$ hour $= 12\frac{2}{3} \times \frac{7}{19}$
$= \frac{38}{3} \times \frac{7}{19} = \frac{2 \times 7}{3} = \frac{14}{3}$ km $= 4\frac{2}{3}$ km
Thus, he will cover $\frac{14}{3}$ or $4\frac{2}{3}$ km in $\frac{7}{19}$ hour.

7. Total no. of students = 80
No. of girls $= \frac{4}{10}$ of $80 = \frac{4}{10} \times 80 = 4 \times 8 = 32$
Thus, there are 32 girls in that class.

8. The cost of a book = ₹ $18\frac{1}{4}$
The cost of 10 books $= 18\frac{1}{4} \times 10 = \frac{73}{4} \times 10$
$= \frac{73 \times 5}{2} = \frac{365}{2} =$ ₹ 182·50
Thus, the total cost of books is ₹ 182·50.

9. Total no. of men and women = 80

10. Weight of Jiya = 64 kg

No. of women $= \frac{4}{5}$ of $80 = \frac{4}{5} \times 80 = 4 \times 16$

$= 64$

Thus, the total no. of women in hotel is 64.

11. Weight of Ghee $= 12\frac{1}{2}$ kg

Ghee used $= \frac{1}{5}$ of $12\frac{1}{2} = \frac{1}{5} \times \frac{25}{2} = \frac{5}{2}$

$= 12 \div 1\frac{1}{2} = 12 \div \frac{3}{2}$

Now, weight of left Ghee $= \frac{25}{2} - \frac{5}{2} = \frac{20}{2}$

$= 10$ kg

Thus, the left over ghee in the pot is 10 kg.

12. Cost of 1 banana $= ₹\ 1\frac{1}{2}$

No. of bananas for ₹ 12

$= 12 \times \frac{2}{3} = 4 \times 2 = 8$

Thus, he sold 8 bananas.

13. Total quality of milk $= 20\ l$

Each child got $= \frac{1}{14}\ l$

$= \frac{36}{7} = 5{\cdot}14$

$\therefore$ No. of children $= 20 \div \frac{1}{14} = 20 \times \frac{14}{1}$

$= 280$

Thus, the total no. of students is 280.

14. The cost of 7 m ribben = ₹ 36

The cost of 1 m ribben = 36 ÷ 7

Thus, the cost of 1 m ribbon is ₹ 5·14.

15. The product of two numbers $= 6\frac{1}{6}$

One no. $= 4\frac{3}{4}$

Other no. $= 6\frac{1}{6} \div 4\frac{3}{4} = \frac{37}{6} \div \frac{19}{4}$

$= \frac{37}{6} \times \frac{4}{19} = \frac{37}{3} \times \frac{2}{19} = \frac{74}{57}$

Thus, the required no. is $\frac{74}{54}$.

16. The required fraction $= \frac{3}{5} \div \frac{21}{25}$

$= \frac{3}{5} \times \frac{25}{21} = 3 \times \frac{5}{21} = \frac{5}{7}$

10. RATIO AND PROPORTION

Exercise - 25

Write the following terms in ratio :

1. 44 kg and 55 kg = 44 kg : 55 kg

$= \frac{44}{55} = \frac{4}{5} = 4 : 5$

2. 35 and 70 = 35 : 70

$= \frac{35}{70} = \frac{1}{2} = 1 : 2$

3. 8 ₹ 50 P and 340 P

= 850 P : 340 P $= \frac{850}{340} = \frac{85}{34} = \frac{5}{2} = 5 : 2$

4. 10 kg and 8000 g

= 10000 g : 8000 g $= \frac{10000}{8000} = \frac{10}{8} = 10 : 8$

5. 11 years and 121 years

= 11 years : 121 years

$= \frac{11}{121} = \frac{1}{11} = 1 : 11$

6. 26 and 39 = 26 : 39

$= \frac{26}{39} = \frac{2}{3} = 2 : 3$

Which of the following ratios are in the proportion :

7. 15 : 30 :: 2 : 4

Product of external numbers = 15 × 4 60

Product of middle number = 30 × 2 = 60

$\therefore$ Both the products are same. So the ratios are in proportion.

8. 5 : 8 :: 12 : 21
Product of external numbers = 21 × 5 = 105
Product of middle numbers = 8 × 12 = 96
∴ Both the products are not same. So the ratios are not in proportion.

9. 7 : 9 :: 49 : 63
Product of external numbers = 7 × 63 = 441
Product of middle numbers = 9 × 49 = 441
∴ Both the products are same. So the ratios are in proportion.

10. 17 : 51 :: 1 : 3
Product of external numbers = $17 \times 3 = 51$
Product of middle numbers = 51 × 1 = 51
∴ Both the products are same. So the ratios are in proportion.

Find the value of x in the following :

11. $\frac{3}{5} = \frac{x}{15}$
$\frac{3}{5} = \frac{x}{15} = 3 \times 15 = 5 \times x$
$x = \frac{3 \times 15}{5} = 3 \times 3 = 9$

12. $\frac{1}{x} = \frac{10}{20}$
$\frac{1}{x} = \frac{10}{20} = x \times 10 = 20 \times 1$
$x = \frac{20 \times 1}{10} = 2 \times 1 = 2$

13. $\frac{7}{12} = \frac{14}{x}$
$\frac{7}{12} = \frac{14}{x} = 7 \times x = 12 \times 14$
$x = \frac{12 \times 14}{7} = 12 \times 2 = 24$

14. $\frac{11}{15} = \frac{x}{60}$
$\frac{11}{15} = \frac{x}{60} = 15 \times x = 11 \times 60$
$x = \frac{11 \times 60}{15} = 11 \times 4 = 44$

15. Age of Parul = 18 years, Age of sony = 27 years
Ratio of their ages = 18 : 27
$= \frac{18}{27} = \frac{2}{3} = 2:3$

16. Income of Mohan = ₹ 8000,
Income of Sohan = ₹ 25000
Ratio of their ages = 8000 : 25000
$= \frac{8000}{25000} = \frac{8}{25} = 8:25$

17. No. of girls = 800
No. of boys = 700
Ratio of girls and boys = 800 : 700
$= \frac{800}{700} = \frac{8}{7} = 8:7$

18. Total money = ₹ 100
I Part = $3x$
II Part = $2x$
$3x + 2x = 100$
$5x = 100$
$x = \frac{100}{5} = 20$
Hence, I part = $3x = 3 \times 20 =$ ₹ 60
II part, $2x = 2 \times 20 =$ ₹ 40

19. Length of field = $4x$, Breadth of field = $3x$
Perimeter of rectangular field = 700 m
∴ Perimeter of rectangle = $2(l + b)$
$700 = 2[4x + 3x]$
$700 = 2 \times 7x$
$700 = 14x$
$x = \frac{700}{14} = 50$
∴ Length of field = $4x = 4 \times 50 = 200$ m
Breadth of field = $3x = 3 \times 50 = 150$ m

20. Total amount = ₹ 7000
I part = $4x$
II part = $3x$
∴ $4x + 3x = 7000$
$7x = 7000$

21. Ratio of the ages of father and son = 11 : 7
Age of father = 66 years
Let age of son = x years
∴ $\frac{11}{7} = \frac{66}{x}$
$11 \times x = 66 \times 7$

$x = \frac{7000}{7} = 1000$

Hence, I part $= 4x = 4 \times 1000 = 4000$

II part $= 3x = 3 \times 1000 = 3000$

22. No. of males $= 3x$

No. of females $= 7x$

Total no. of persons $= 1000$

$\therefore \quad 3x + 7x = 1000$

$10x = 1000$

$x = \frac{1000}{10} = 100$

$\therefore$ Hence, No. of males $= 3x = 3 \times 100 = 300$

No. of females $= 7x = 7 \times 100 = 700$

24. The ratios of length and breadth $= 15 : 11$

Length $= 90$ m, Let breadth $= x$ m

$\therefore \quad 15 : 11 :: 90 : x$

$15 \times x = 11 \times 90$

$x = \frac{11 \times 90}{15} = 11 \times 6 = 66$ m

$x = \frac{66 \times 7}{11} = 6 \times 7 = 42$

$\therefore$ Hence, the age of son is 42 years.

23. The ratio of zinc and copper $= 8 : 5$

Quantity of copper $= 10$ kg

Let Quantity of zinc $= x$ kg

$8 : 5 :: x : 10$

$5 \times x = 8 \times 10$

$x = \frac{8 \times 10}{5} = 16$ kg

Hence, the quantity of zinc is 16 kg.

11. DECIMAL FRACTIONS

Exercise - 26

1. Write the shaded part as simple fraction and decimal fraction.

(a) Simple fraction $= \frac{4}{10}$ Decimal fraction $= 0 \cdot 4$

(b) Simple fraction $= \frac{7}{10}$ Decimal fraction $= 0 \cdot 7$

2. Write the shaded part of the given figure as simple fraction and decimal fraction.

(a) Simple fraction $= \frac{10}{100}$ Decimal fraction $= 0 \cdot 10$

(b) Simple fraction $= \frac{20}{100}$ Decimal fraction $= 0 \cdot 20$

3. Shade the part of the following figure as indicated :

Ans. Do yourself

Exercise - 27

1. Read and write the following decimal fractions in words :

(a) Decimal three (b) decimal one four (c) decimal six

(d) decimal nine one six (e) decimal zero zero seven (f) one decimal zero zero six

(g) two decimal five (h) twelve decimal four two

(i) eighty decimal six seven eight

(j) four hundred twelve decimal two one zero five

(k) Five hundred fourteen decimal two three

(l) four decimal zero one zero two

2. Write the following decimal fractions in digits :

(a) 0·8 (b) 5·01 (c) 0·01 (d) 15·404 (e) 1·0302 (f) 0·0017

3. Change the following in decimal :

(a) $\frac{3}{10} = 0 \cdot 3$ (b) $\frac{7}{10} = 0 \cdot 7$ (c) $\frac{4}{10} = 0 \cdot 4$ (d) $\frac{8}{10} = 0 \cdot 8$

(e) $\frac{5}{10} = 0 \cdot 5$ (f) $\frac{16}{100} = 0 \cdot 16$ (g) $\frac{71}{100} = 0 \cdot 71$ (h) $\frac{178}{100} = 1 \cdot 78$

(i) $\frac{19}{10} = 1 \cdot 9$ (j) $\frac{67}{100} = 0 \cdot 67$ (k) $\frac{97}{1000} = 0 \cdot 097$ (l) $\frac{48}{1000} = 0 \cdot 048$

(m) $\frac{105}{100} = 1 \cdot 05$ (n) $\frac{999}{1000} = 0 \cdot 999$ (o) $\frac{5678}{1000} = 5 \cdot 678$

4. Change the following in simple fraction :

(a) $0 \cdot 7 = \frac{7}{10}$ (b) $0 \cdot 06 = \frac{6}{100}$ (c) $0 \cdot 007 = \frac{7}{1000}$ (d) $0 \cdot 19 = \frac{19}{100}$

(e) $0 \cdot 97 = \frac{97}{100}$ (f) $6 \cdot 9 = \frac{69}{10}$ (g) $9 \cdot 67 = \frac{967}{100}$ (h) $1 \cdot 01 = \frac{101}{100}$

(i) $5 \cdot 003 = \frac{5003}{1000}$ (j) $5 \cdot 012 = \frac{5102}{1000}$

5. Fill in the blanks :

(a) $0 \cdot 32 = 0$ ones, 3 tenth and 2 hundredth

(b) $1 \cdot 52 = 1$ ones, 5 tenth and 2 hundredth

(c) $25 \cdot 843 = 2$ tens, 5 ones, 8 tenth, 4 hundredth and 3 thousanth.

(d) $0 \cdot 12 = 1$ tenth and 2 hundredth

(e) $2 \cdot 57 = 2$ ones, 5 tenths and 7 hundredth

6. Write the place value of the given digits :

(a) 2 tenth (b) 0 tenth, 4 hundredth (c) 1 tenth, 7 hundredth

(d) 0 tenth, 7 hundredth and 7 thousandth (e) 7 tenth, 8 hundredth

(f) 4 tenth, 9 hundredth (g) 1 ones, 3 tenth, 9 hundredth

(h) 2 ones, 0 tenth and 2 hundredth (i) 5 tens, 2 ones, 9 tenth

(j) 1 hundred, 2 tens, 4 ones, 3 tenth, 5 hundredth, 7 thousandth

(k) 3 ones, 1 tenth, 4 hundredth, 5 thousandth, 6 ten thousandth

(l) 3 tens, 4 ones, 4 tenth, 6 hundredth, 7 thousandth, 8 ten thousandth

7. Put the sign with <, > or =

(a) = (b) < (c) < (d) > (e) > (f) = (g) = (h) <

(i) < (j) < (k) > (l) >

8. Arrange the following decimal numbers in ascending order :

(a) $0 \cdot 1, 0 \cdot 2, 0 \cdot 5, 0 \cdot 8$ (b) $0 \cdot 09, 0 \cdot 45, 0 \cdot 68, 0 \cdot 81$

(c) $0 \cdot 030, 0 \cdot 033, 0 \cdot 130, 0 \cdot 301$ (d) $0 \cdot 187, 0 \cdot 523, 0 \cdot 532, 0 \cdot 545$

(e) $1 \cdot 007, 1 \cdot 03, 5 \cdot 298, 5 \cdot 691$ (f) $0 \cdot 142, 0 \cdot 214, 0 \cdot 241, 0 \cdot 412$

9. Arrange the following decimal numbers in descending order :

(a) $0 \cdot 9, 0 \cdot 8, 0 \cdot 4, 0 \cdot 2$ (b) $0 \cdot 35, 0 \cdot 28, 0 \cdot 19, 0 \cdot 12$

(c) $0 \cdot 301, 0 \cdot 103, 0 \cdot 030, 0 \cdot 003$ (d) $38 \cdot 31, 35 \cdot 24, 21 \cdot 45, 18 \cdot 36$

(e) $0 \cdot 229, 0 \cdot 224, 0 \cdot 217, 0 \cdot 205$ (f) $0 \cdot 988, 0 \cdot 897, 0 \cdot 798, 0 \cdot 789$

10. Write the following simple fractions as expanded form :

(a) $\frac{60}{100}$ (b) $\frac{75}{1000}$ (c) $\frac{79}{10}$ (d) $\frac{9517}{1000}$

11. Fill in the blanks :

(a) $0 \cdot 75 = \frac{7}{10} + \frac{5}{100}$ (b) $0 \cdot 03 = \frac{0}{10} + \frac{3}{100}$

(c) $8 \cdot 28 = 8 + \frac{2}{10} + \frac{8}{100}$ (d) $25 \cdot 329 = 20 + 5 + \frac{3}{10} + \frac{2}{100} + \frac{9}{1000}$

12. Write the following expanded form in decimal form :

(a) $0 \cdot 6 + \cdot 07 = 0 \cdot 67$ (b) $4 + 0 \cdot 8 + 0 \cdot 00 + 0 \cdot 006 = 4 \cdot 806$

(c) $0 \cdot 0 + 0 \cdot 00 + 0 \cdot 005 = 0 \cdot 005$ (d) $10 + 4 + 0 \cdot 8 = 14 \cdot 8$

12. ADDITION AND SUBTRACTION OF DECIMAL FRACTIONS

Exercise - 28

1. Fill in the blanks :
(a) 0·7 (b) 0·8 (c) 0·8

2. Add the following :
(a) 1·3 (b) 1·5 (c) 0·6 (d) 1·5 (e) 0·5 (f) 1·2 (g) 0·8
(h) 0·9 (i) 1·22 (j) 6·56 (k) 13·922 (l) 31·64 (m) 7·56 (n) 7·10
(o) 7·673 (p) 181·665

3. Find the Value :
(a) 4·3 + 8·2 + 1·4 = 13·9
(b) 3·01 + 2·34 + 3·05 = 8·40
(c) 4 + 5·25 + 6·34 = 15·59
(d) 7·54 + 2·344 + 0·088 = 9·972
(e) 6·2 + 4·302 + 3·45 = 13·952
(f) 3·41 + 0·5006 + 8·965 = 12·8756

4. Simplify :
(a) 4·2 + 3·55 + 0·01 + 8·56 = 16·32
(b) 7·24 + 4·23 + 1·8 + 6·4 = 19·67
(c) 2·07 + 0·007 + 1·5 + 7·004 = 10·581
(c) 10·35 + 4·65 + 9·908 = 24·908

5. Arrange the following in columns and add :
(a) 15·8 + 8·4 + 3·002 + 18·08 = 45·282
(b) 7·05 + 0·23 + 8·98 = 16·26
(c) 0·576 + 8·645 + 1·8 + 35·36 = 46·381
(d) 15·25 + 9·97 + 0·385 = 25·605
(e) 0·89 + 2·35 + 8·5 + 8·05 = 19·79
(f) 3·02 + 3·45 + 15·78 = 22·25

Exercise - 29

1. See the figure and fill in the blanks :
(a) 0·1 (b) 0·6 (c) 0·4

2. Subtract the following :
(a) 0·3 (b) 0·4 (c) 0·2 (d) 0·6 (e) 0·8 (f) 8·66 (g) 13·32 (h) 56·4

3. Subtract the following :
(a) 0·02 (b) 0·047 (c) 0·006 (d) 0·003 (e) 0·07 (f) 0·41
(g) 0·30 (h) 0·13

4. Subtract the following :
(a) 4·8 (b) 17·8 (c) 62·48 (d) 5·31 (e) 5·802 (f) 47·593
(g) 48·95 (h) 1·066

5. Find the Value of the following :
(a) 46·85 – 1889 = 27·96 (b) 18 – 9·98 = 8·02 (c) 604 – 198·707 = 405·293
(d) 568·2 – 83·777 = 484·423 (e) 598·2–185·84 = 412·36
(f) 695·32–187·077 = 508·243 (g) 1101·04 – 98·48 = 1002·56
(h) 100·1 – 56·666 = 43·434

13. APPLICATION OF DECIMAL IN RUPEES AND PAISE

Exercise - 30

Fill in the blanks :

1. 7 P = _____ Rs

1 P = $\frac{1}{100}$ Rs

7 P = $\frac{7}{100}$ Rs = 0·07 Rs

2. 70 P = _____ Rs

1 P = $\frac{1}{100}$ Rs

70 P = $\frac{70}{100}$ Rs = 0·70 Rs

3. 615 P = _____ Rs

1 P = $\frac{1}{100}$ Rs

615 P = $\frac{615}{100}$ Rs = 6·15 Rs

4. 18 Rs 15 P = _____ Rs

18 Rs 15 P = 18 Rs + $\frac{15}{100}$ Rs

= (18 + 0·15) Rs = 18·15 Rs

5. 6 cm = _____ m

1 cm = $\frac{1}{100}$ m

6 cm = $\frac{6}{100}$ m = 0·06 m

6. 35 cm = _____ m

1 cm = $\frac{1}{100}$ m

35 cm = $\frac{35}{100}$ m = 0·35 m

7. 8 m 25 cm = _____ m

8 m 25 cm = 8 m + $\frac{25}{100}$ m

= 8 m + 0·25 m = 8·25 m

8. 6 m = _____ km

1 m = $\frac{1}{1000}$ km

6 m = $\frac{6}{1000}$ km = 0·006 km

9. 6000 m = _____ km

1 m = $\frac{1}{1000}$ km

6000 m = $\frac{6000}{1000}$ km = 6 km

10. 550 m = _____ km

1 m = $\frac{1}{1000}$ km

550 m = $\frac{550}{1000}$ km = 0·550 km

11. 8454 m = _____ km

1 m = $\frac{1}{1000}$ km

8454 m = $\frac{8454}{1000}$ km = 8·454 km

12. 45 km 630 m = _____ km

= 45 km + $\frac{630}{1000}$ km = [45 + 0·630] km

= 45·630 km

13. 8 g = _____ kg

1g = $\frac{1}{1000}$ kg

8g = $\frac{8}{1000}$ kg = 0·008 kg

14. 4200 g = _____ kg

1g = $\frac{1}{1000}$ kg

4200 g = $\frac{4200}{1000}$ kg = 4·200 kg

15. 70 g = _____ kg

1g = $\frac{1}{1000}$ kg

70 g = $\frac{70}{1000}$ kg = 0·70

16. 8500 g = _____ kg

1g = $\frac{1}{1000}$ kg

8500 g = $\frac{8500}{1000}$ kg = 8·500 kg

17. 8 kg 5 g = _____ kg

8 kg 5 g = 8 kg + $\frac{5}{1000}$ kg

= [8 + 0·005] kg = 8·005 kg

18. 35 kg 750 g = _____ kg

35 kg 750 g = 35 kg + $\frac{750}{1000}$ kg

= [35 + 0·750] kg = 35·750 kg

19. 50 ml = _____ l

1 ml = $\frac{1}{1000}$ l

50 ml = $\frac{50}{1000}$ l = 0·050 l

20. 640 ml = _____ l

1 ml = $\frac{1}{1000}$ l

640 ml = $\frac{640}{1000}$ l = 0·640 l

21. 18 ml = _____ l

1 ml = $\frac{1}{1000}$ l

18 ml = $\frac{18}{1000}$ l = 0·018 l

22. 4575 ml = _____ l

1 ml = $\frac{1}{1000}$ l

4575 ml = $\frac{4575}{1000}$ l = 4·575 l

23. 25 l 750 ml = _____ l

25 l 750 ml = 25 l + $\frac{750}{1000}$ l

= (25 + 0·750) l = 25·750 l

24. 9875 ml = _____ l

1 ml = $\frac{1}{1000}$ l

9758 ml = $\frac{9875}{1000}$ l = 9·875 l

14. SIMPLIFICATION

Exercise - 31

Simplify the following :

1. $7\cdot5\times3\cdot2-2\cdot4\times2\cdot01$

$=24\cdot0-4\cdot824=19\cdot176$

2. $16+5-18\div3$

$21-6=15$

3. $1\times35+16\times72$

$=35+1152=1187$

4. $6\cdot05+11\cdot56-20\div2$

$=17\cdot61-10=7\cdot61$

5. $5\frac{1}{2}\div\frac{10}{4}\times2\frac{1}{4}-\frac{3}{4}\times\frac{6}{5}$

$=\frac{11}{2}\times\frac{4}{10}\times\frac{9}{4}-\frac{18}{20}$

$=\frac{99}{20}-\frac{18}{20}=\frac{81}{20}$ or $4\frac{1}{20}$

6. $20-2\times3+16$

$=20-6+16=(20+16)-6$

$=36-6=30$

7. $3\frac{4}{5}+\frac{2}{5}\div\frac{1}{4}\times\frac{2}{6}$

$=\frac{19}{5}+\frac{2}{5}\times\frac{4}{1}\times\frac{1}{3}$

$=\frac{19}{5}+\frac{8}{15}=\frac{57+8}{15}=\frac{65}{15}=\frac{13}{3}$ or $4\frac{1}{3}$

8. $37\cdot5+15\cdot05-0\cdot0005$

$=52\cdot55-0\cdot0005=52\cdot5495$

9. $9\cdot9\div1\cdot1+0\cdot33\times10+9$

$=9+3\cdot30+9=21\cdot30$

10. $17\times3+2-21\div7$

$=51+2-3=53-3=50$

11. $7\cdot5-0\cdot3\times0\cdot3+3\cdot05+6$

$=7\cdot5-0\cdot09+3\cdot05+6$

$=(7\cdot5+3\cdot05+6)-0\cdot09$

$=16\cdot55-0\cdot09=16\cdot46$

12. $5\times4-\frac{4}{3}\times\frac{1}{4}\div2$

$20-\frac{4}{3}\times\frac{1}{4}\times\frac{1}{2}=20-\frac{1}{6}=\frac{120-1}{6}=\frac{119}{6}=19\frac{5}{6}$

13. $3\cdot25\div0\cdot25+9\cdot6+3$

$=13+9\cdot6+3=25\cdot6$

15. $17\cdot6+3\cdot5-9\cdot8\div2$

$=17\cdot6+3\cdot5-4\cdot9$

$=21\cdot1-4\cdot9=16\cdot2$

16. $14\frac{1}{2}+3\frac{1}{2}-2\frac{1}{3}\times2$

$=\frac{29}{2}+\frac{7}{2}-\frac{7}{3}\times2=\frac{29}{2}+\frac{7}{2}-\frac{14}{3}$

$=\frac{87+21-28}{6}=\frac{108-28}{6}=\frac{80}{6}=13\frac{2}{6}$

17. $10\times1-\frac{1}{5}\times\frac{1}{5}\div5$

$=10-\frac{1}{5}\times\frac{1}{5}\times\frac{1}{5}$

$=10-\frac{1}{125}=\frac{1250-1}{125}=\frac{1249}{125}=9\frac{124}{125}$

18. $25+5+8-3\times6$

$=25+5+8-18=38-18=20$

19. $128\div4-5+13\times4$

$=32-5+52=(32+52)-5$

$=84-5=79$

20. $2\frac{1}{5}+3\frac{1}{5}\times\frac{1}{4}\times\frac{4}{3}$

$=\frac{11}{5}+\frac{16}{5}\times\frac{1}{4}\times\frac{4}{3}=\frac{11}{5}+\frac{16}{15}=\frac{33+16}{15}=\frac{49}{15}=3\frac{4}{15}$

15. APPROXIMATION

Exercise - 32

1. Round off the following numbers to the nearest ten :

(a) 63
63 is rounded to = 60
[∵ 3 < 5]

(b) 75
75 is rounded to = 80
[∵ 5 = 5]

(c) 84
84 is rounded to = 80
[∵ 4 < 5]

(d) 94
94 is rounded to = 90
[∵ 4 < 5]

(e) 215
215 is rounded to = 220
[∵ 5 = 5]

(f) 365
365 is rounded to = 370
[∵ 5 = 5]

(g) 243
243 is rounded to = 240
[∵ 3 < 5]

(h) 1025
1025 is rounded to = 1030
[∵ 5 = 5]

2. Round off the following numbers to the nearest hundred :

(a) 468
468 is rounded to = 500
[∵ 68 > 50]

(b) 318
318 is rounded to = 300
[∵ 18 < 50]

(c) 918
918 is rounded to = 900
[∵ 18 < 50]

(d) 687
687 is rounded to = 700
[∵ 87 > 50]

(e) 8454
8454 is rounded to = 8500
[∵ 54 > 50]

(f) 6408
6408 is rounded to = 6400
[∵ 8 < 50]

(g) 9826
9826 is rounded to = 9800
[∵ 26 < 50]

(h) 46287
46287 is rounded to = 46300
[∵ 87 > 50]

3. Round off the following numbers to the nearest thousand :

(a) 5464
5464 is rounded to = 5000
[∵ 464 < 500]

(b) 16780
16780 is rounded to = 17000
[∵ 780 > 500]

(c) 54272
54272 is rounded to = 54000
[∵ 272 < 500]

(d) 123456
123456 is rounded to = 123000
[∵ 456 < 500]

4. Round off value in lakh of 5,67,843 = 600000 [∵ 67, 843 > 50, 000]

5. Round off value of crore of 1,24,35,765 = 1,00,00,000 [∵ 24, 35,765 < 50, 00, 000]

6. Fill in the blanks :

The round off value of 18,15,03,685 :

(a) Round off tens **18, 15, 03, 690**
(b) Rounding hundreds **18, 15, 03, 700**
(c) Round off thousands **18, 15, 04, 000**
(d) Rounding Lakh **18, 15, 00, 000**

Exercise - 33

1. Find the rounding off nearest one :

(a) Round off number of 5·7 = 6·0 [∵ 7 > 5]
(b) Round off number of 2·4 = 2·0 [∵ 4 < 5]
(c) Round off number of 1·2 = 1·0 [∵ 2 < 5]
(b) Round off number of 6·5 = 7·0 [∵ 5 = 5]

2. Find the rounding off number upto one decimal places :

(a) Round off no. of 4·56 = 4·60 [∵ 6 > 5]
(b) Round off no. of 9·54 = 9·50 [∵ 4 < 5]
(c) Round off no. of 10·27 = 10·30 [∵ 7 > 5]
(d) Round off no. of 11·07 = 11·10 [∵ 7 > 5]

3. Find the rounding off upto two decimal places :

(a) Round off no. of 5·763 = 5·760 [∵ 3 < 5]
(b) Round off no. of 8·478 = 8·480 [∵ 8 > 5]
(c) Round off no. of 4·026 = 4·030 [∵ 6 > 5]
(d) Round off no. of 1·0124 = 1·0120 [∵ 4 < 5]

4. Find the rounding off upto three decimal places :
(a) Round off no. of 1·0247 = 1·0250 [$\because 7 > 5$]
(b) Round off no. of 40·0057 = 40·0060 [$\because 7 > 5$]
(c) Round off no. of 1·0205 = 1·0210 [$\because 5 = 5$]
(d) Round off no. of 2·4324 = 2·4320 [$\because 4 < 5$]

5. Find the rounding off upto two decimal places :
(a) $2 \cdot 5 \div 7 = 0 \cdot 357$ Round off value = 0·36
(b) $1 \cdot 2 \div 9 = 0 \cdot 133$ Round off value = 0·13
(c) $22 \cdot 2 \div 13 = 1 \cdot 707$ Round off value = 1·70

6. Find the rounding off number upto three decimal places :
(a) $\frac{2}{3} = 0 \cdot 666$
(b) $\frac{3}{7} = 0 \cdot 4285$ Round off no. = 0·429
(c) $\frac{4}{9} = 0 \cdot 444$
(d) $\frac{2}{7} = 0 \cdot 2857$, Round off no. = 0·286

16. AVERAGE

Exercise - 34

1. Fill in the blanks :
(a) The average of 1, 3, 9, 7 $= \frac{\text{sum of numbers}}{\text{total numbers}} = \frac{1+3+9+7}{4} = \frac{20}{4} = 5$
(b) The average of 9, 12, 15, 18, 21 $= \frac{\text{sum of numbers}}{\text{total numbers}} = \frac{9+12+15+18+21}{5} = \frac{75}{5} = 15$
(c) Average of 205 and 15 $= \frac{205+15}{2} = \frac{220}{2} = 110$
(d) First four even numbers = 2, 4, 6, 8
Average $= \frac{2+4+6+8}{4} = \frac{20}{4} = 5$
(e) First five odd numbers =1, 3, 5, 7, 9
Average $= \frac{1+3+5+7+9}{5} = \frac{25}{5} = 5$

2. Fill in the blanks :
(a) 4 + 6 = 10 (b) 6 + 9 + 12 = 27

3. Average presentation $= \frac{26+28+35+32+34+37}{6} = \frac{192}{6} = 32$
Hence, daily average presentation is 32.

4. Average age $= \frac{22+18+14}{3} = \frac{54}{3} = 18$
Hence, the average age of ages is 18.

5. Average rainfall $= \frac{2 \cdot 8 + 5 \cdot 5 + 12 \cdot 5 + 4 \cdot 4 + 4 \cdot 8}{5} = \frac{30 \cdot 0}{5} = 6$
Hence, the average rainfall of per month is 6.

6. (a) Average of group $= \frac{55+60+66+72+68+75}{6} = \frac{396}{6} = 66$
(b) No. of students is 3 who got more than average number.
(c) No. of students is 2 who got less marks than average number
(d) Only 1 student got equal marks to the average number.

7. Total amount = ₹ 8680, No. of days = 7
Average $= \frac{8680}{7} = 1240$

8. Average $= \frac{\text{Sum of runs}}{\text{No. of matches}}$
$= \frac{8+00+16+36}{4} = \frac{60}{4} = 15$

Formative Assessment-2 (Lesson 9 to 16)

1. Multiply the following :

(a) $\frac{6}{5}$ by $7 = \frac{6}{5} \times 7 = \frac{6 \times 7}{5} = \frac{42}{5}$

(b) $\frac{7}{9}$ by $6 = \frac{7}{9} \times 6 = \frac{7 \times 6}{9} = \frac{42}{9}$

(c) $\frac{5}{7}$ by $8 = \frac{5}{7} \times 8 = \frac{5 \times 8}{7} = \frac{40}{7}$

(d) $\frac{8}{11}$ by $6 = \frac{8}{11} \times 6 = \frac{8 \times 6}{11} = \frac{48}{11}$

2. Write the following terms in ratio :

(a) 44 kg and 55 kg = 44 kg : 55 kg
$= \frac{44}{55} = \frac{4}{5} = 4 : 5$

(b) 35 and 70 = 35 : 70
$= \frac{35}{70} = \frac{1}{2} = 1 : 2$

(c) 8 ₹ 50 P and 340 P
= 850 P : 340 P $= \frac{850}{340} = \frac{85}{34} = \frac{5}{2} = 5 : 2$

(d) 10 kg and 8000 g
= 10000 g : 8000 g $= \frac{10000}{8000} = \frac{10}{8} = 10 : 8$

(e) 11 years and 121 years
= 11 years : 121 years $= \frac{11}{121} = \frac{1}{11} = 1 : 11$

3. Change the following in decimal :

(a) $\frac{5}{10} = 0 \cdot 5$ (b) $\frac{16}{100} = 0 \cdot 16$ (c) $\frac{71}{100} = 0 \cdot 71$ (d) $\frac{178}{100} = 1 \cdot 78$

4. Add the following :

(a) 1·3 (b) 1·5 (c) 0·6 (d) 1·5

5. Fill in the blanks :

(a) 7 P = _____ Rs
1 P $= \frac{1}{100}$ Rs
7 P $= \frac{7}{100}$ Rs = 0·07 Rs

(b) 70 P = _____ Rs
1 P $= \frac{1}{100}$ Rs
70 P $= \frac{70}{100}$ Rs = 0·70 Rs

(c) 615 P = _____ Rs
1 P $= \frac{1}{100}$ Rs
615 P $= \frac{615}{100}$ Rs = 6·15 Rs

(d) 18 Rs 15 P = _____ Rs
18 Rs 15 P = 18 Rs + $\frac{15}{100}$ Rs
= (18 + 0·15) Rs = 18·15 Rs

6. Simplify the following :

(a) $7 \cdot 5 \times 3 \cdot 2 - 2 \cdot 4 \times 2 \cdot 01$
$= 24 \cdot 0 - 4 \cdot 824 = 19 \cdot 176$

(b) $16 + 5 - 18 \div 3$
$21 - 6 = 15$

(c) $1 \times 35 + 16 \times 72$
$= 35 + 1152 = 1187$

(d) $6 \cdot 05 + 11 \cdot 56 - 20 \div 2$
$= 17 \cdot 61 - 10 = 7 \cdot 61$

7. Round off the following numbers to the nearest hundred :

(a) 468
468 is rounded to = 500
[$\because$ 68 > 50]

(b) 318
318 is rounded to = 300
[$\because$ 18 < 50]

(c) 918
918 is rounded to = 900
[$\because$ 18 < 50]

(d) 687
687 is rounded to = 700
[$\because$ 87 > 50]

8. Round off value in lakh of 5,67,843 = 600000 [$\because$ 67, 843 > 50, 000]

9. Total amount = ₹ 8680, No. of days = 7
Average $= \frac{8680}{7} = 1240$

10. Average rainfall $= \frac{2 \cdot 8 + 5 \cdot 5 + 12 \cdot 5 + 4 \cdot 4 + 4 \cdot 8}{5} = \frac{30 \cdot 0}{5} = 6$

Hence, the average rainfall of per month is 6.

11. The required fraction $= \frac{3}{5} \div \frac{21}{25} = \frac{3}{5} \times \frac{25}{21} = 3 \times \frac{5}{21} = \frac{5}{7}$

12. Total amount = ₹ 7000
I part = $4x$, II part = $3x$
$\therefore \quad 4x + 3x = 7000; \; 7x = 7000$
$x = \frac{7000}{7} = 1000$ Hence, I part = $4x = 4 \times 1000 = 4000$; II part = $3x = 3 \times 1000 = 3000$

13. Round off value of crore of 1,24,35,765 = 1,00,00,000 [$\because$ 24, 35,765 < 50, 00, 000]

14. Average $= \frac{\text{Sum of runs}}{\text{No. of matches}} = \frac{8+00+16+36}{4} = \frac{60}{4} = 15$

15. Total no. of pages = 320
Punit reads $= \frac{7}{8}$ of $320 = \frac{7}{8} \times 320 = 7 \times 40 = 280$

Summative Assessment-1

1. Fill in the blanks with Roman numbers :
Ans. Do yourself.

2. Write the following in numerals :
(a) 25,37,779 (b) 50,39,239 (c) 5,00,05,001 (d) 5,36,00,031

3. Solve the following expressions :

(a) $843859 - 1930 - 23694 - 88324$
$= 843859 - (1930 + 23694 + 88324)$
$= 843859 - 113948 = 729911$

(b) $128 \div 4 + 12 \times 5 - 4$
$= (128 \div 4) + (12 \times 5) - 4$
$= 32 + 60 - 4 = (32 + 60) - 4 = 92 - 4 = 88$

(c) $3 \times 8 - 5 + 28 \div 7 = (3 \times 8) - 5 + (28 \div 4)$
$= 24 - 5 + 7 = (24 + 7) - 5 = 31 - 5 = 26$

(d) $5246 \times 149 + 433 - 66666$
$= (5246 \times 149) + 433 - 66666$
$= (781654 + 433) - 66666$
$= 782087 - 66666 = 715421$

4. (a) Yes 15, the multiple of 5. (b) Yes 28, the multiple of 9.
(c) Yes 42, the multiple of 7. (d) Yes 72, the multiple of 9.

5. Find the LCM of the following numbers :

(a) 40 and 70

2	40, 70
2	20, 35
2	10, 35
5	5, 35
7	1, 7
	1, 1

$\therefore$ LCM of 40 and 70
$= 2 \times 2 \times 2 \times 5 \times 7 = 280$

(b) 50 and 15

2	50, 15
3	25, 15
5	25, 5
5	5, 1
	1, 1

$\therefore$ LCM of 50 and 15
$= 2 \times 3 \times 5 \times 5 = 150$

(c) 80 and 120

2	80, 120
2	40, 60
2	20, 30
2	10, 15
3	5, 15
5	5, 5
	1, 1

$\therefore$ LCM of 80 and 120
$= 2 \times 2 \times 2 \times 2 \times 3 \times 5 = 240$

(d) 20, 160 and 180

2	20, 160, 180
2	10, 80, 90
2	5, 40, 45
2	5, 20, 45
2	5, 10, 45
3	5, 5, 45
3	5, 5, 15

(e) 200, 300 and 400

2	200, 300, 400
2	100, 150, 200
2	50, 75, 100
2	25, 75, 50
3	25, 75, 25
5	25, 25, 25
5	5, 5, 5

(f) 150, 210 and 300

2	150, 210, 300
2	75, 105, 150
3	75, 105, 75
5	25, 35, 25
5	5, 7, 5
7	1, 7, 1
	1, 1, 1

5	5,	5,	5		1, 1, 1
	1,	1,	1	∴ LCM of 200, 300 and 400	

∴ LCM of 20, 160 and 180 = 2 × 2 × 2 × 2 × 2 × 3 × 3 × 5 = 1440

= 2 × 2 × 2 × 2 × 3 × 5 × 5 = 1200

∴ LCM of 150, 210 and 300 = 2 × 2 × 3 × 5 × 5 × 7 = 2100

6. Simplify the following :

(a) $2\frac{1}{2}\times 7 = \frac{5}{2}\times 7 = \frac{5\times 7}{2} = \frac{35}{2}$

(b) $5\frac{1}{14}\times 7 = \frac{71}{14}\times 7 = \frac{71}{2}$

(c) $8\frac{1}{12}\times 9 = \frac{97}{12}\times 9 = \frac{97\times 3}{4} = \frac{291}{4}$

(d) $3\frac{3}{5}\times 9 = \frac{18}{5}\times 9 = \frac{18\times 9}{5} = \frac{162}{5}$

(e) $2\frac{1}{8}\times 27 = \frac{17}{8}\times 27 = \frac{17\times 27}{8} = \frac{459}{8}$

(f) $1\frac{3}{5}\times 8 = \frac{8}{5}\times 8 = \frac{8\times 8}{5} = \frac{64}{5}$]

(g) $18\times 6\frac{1}{3} = 18\times\frac{19}{3} = 6\times 19 = 114$

(h) $14\times 2\frac{2}{3}\times 7 = 14\times\frac{8}{3}\times 7 = \frac{14\times 8\times 7}{3} = \frac{784}{3}$

7. Find the value of x in the following :

(a) $\frac{3}{5} = \frac{x}{15}$

$\frac{3}{5} = \frac{x}{15} = 3\times 15 = 5\times x$

$x = \frac{3\times 15}{5} = 3\times 3 = 9$

(b) $\frac{1}{x} = \frac{10}{20}$

$\frac{1}{x} = \frac{10}{20} = x\times 10 = 20\times 1$

$x = \frac{20\times 1}{10} = 2\times 1 = 2$

(c) $\frac{7}{12} = \frac{14}{x}$

$\frac{7}{12} = \frac{14}{x} = 7\times x = 12\times 14$

$x = \frac{12\times 14}{7} = 12\times 2 = 24$

(d) $\frac{11}{15} = \frac{x}{60}$

$\frac{11}{15} = \frac{x}{60} = 15\times x = 11\times 60$

$x = \frac{11\times 60}{15} = 11\times 4 = 44$

8. Write the following expanded form in decimal form :

(a) 0·6 + ·07 = 0·67

(b) 4 + 0·8 + 0·00 + 0·006 = 4·806

(c) 0·0 + 0·00 + 0·005 = 0·005

(d) 10 + 4 + 0·8 = 14·8

9. Arrange the following in columns and add :

(a) 15·8 + 8·4 + 3·002 + 18·08 = 45·282

(b) 7·05 + 0·23 + 8·98 = 16·26

(c) 0·576 + 8·645 + 1·8 + 35·36 = 46·381

(d) 15·25 + 9·97 + 0·385 = 25·605

10. Find the Value of the following :

(a) 46·85 – 1889 = 27·96

(b) 18 – 9·98 = 8·02

(c) 604 – 198·707 = 405·293

(d) 568·2 – 83·777 = 484·423

(e) 598·2–185·84 = 412·36

(f) 695·32–187·077 = 508·243

11. Fill in the blanks :

(a) 8 kg 5 g = _____ kg

8 kg 5 g = 8 kg + $\frac{5}{1000}$ kg

= [8 + 0·005] kg = 8·005 kg

(b) 35 kg 750 g = _____ kg

35 kg 750 g = 35 kg + $\frac{750}{1000}$ kg

= [35 + 0·750] kg = 35·750 kg

(c) 50 ml = _____ l

1 ml = $\frac{1}{1000}\,l$

50 ml = $\frac{50}{1000}\,l = 0\cdot 050\,l$

(d) 640 ml = _____ l

1 ml = $\frac{1}{1000}\,l$

640 ml = $\frac{640}{1000}\,l = 0\cdot 640\,l$

12. Simplify the following :

(a) $10 \times 1 - \frac{1}{5} \times \frac{1}{5} \div 5$

$= 10 - \frac{1}{5} \times \frac{1}{5} \times \frac{1}{5}$

$= 10 - \frac{1}{125} = \frac{1250-1}{125} = \frac{1249}{125} = 9\frac{124}{125}$

(b) $25 + 5 + 8 - 3 \times 6$

$= 25 + 5 + 8 - 18 = 38 - 18 = 20$

(c) $128 \div 4 - 5 + 13 \times 4$

$= 32 - 5 + 52 = (32 + 52) - 5$

$= 84 - 5 = 79$

(d) $2\frac{1}{5} + 3\frac{1}{5} \times \frac{1}{4} \times \frac{4}{3}$

$= \frac{11}{5} + \frac{16}{5} \times \frac{1}{4} \times \frac{4}{3}$

$= \frac{11}{5} + \frac{16}{15} = \frac{33+16}{15} = \frac{49}{15} = 3\frac{4}{15}$

13. Fill in the blanks :

The round off value of 18,15,03,685 :

(a) Round off tens **18, 15, 03, 690** (b) Rounding hundreds **18, 15, 03, 700**

(c) Round off thousands **18, 15, 04, 000** (d) Rounding Lakh **18, 15, 00, 000**

14. Find the rounding off upto three decimal places :

(a) Round off no. of 1·0247 = 1·0250 [$\because 7 > 5$]

(b) Round off no. of 40·0057 = 40·0060 [$\because 7 > 5$]

(c) Round off no. of 1·0205 = 1·0210 [$\because 5 = 5$]

(d) round off no. of 2·4324 = 2·4320 [$\because 4 < 5$]

15. Find the rounding off number upto three decimal places :

(a) $\frac{2}{3} = 0 \cdot 666$ (b) $\frac{3}{7} = 0 \cdot 4285$ Round off no. = 0·429 (c) $\frac{4}{9} = 0 \cdot 444$

(d) $\frac{2}{7} = 0 \cdot 2857$, Round off no. = 0·286

16. Fill in the blanks :

(a) The average of 1, 3, 9, 7 $= \frac{\text{sum of numbers}}{\text{total numbers}} = \frac{1+3+9+7}{4} = \frac{20}{4} = 5$

(b) The average of 9, 12, 15, 18, 21 $= \frac{\text{sum of numbers}}{\text{total numbers}} = \frac{9+12+15+18+21}{5} = \frac{75}{5} = 15$

(c) Average of 205 and 15 $= \frac{205+15}{2} = \frac{220}{2} = 110$

(d) First four even numbers = 2, 4, 6, 8

Average $= \frac{2+4+6+8}{4} = \frac{20}{4} = 5$

(e) First five odd numbers =1, 3, 5, 7, 9

Average $= \frac{1+3+5+7+9}{5} = \frac{25}{5} = 5$

17. The cost of a book = ₹ $18\frac{1}{4}$

The cost of 10 books $= 18\frac{1}{4} \times 10 = \frac{73}{4} \times 10 = \frac{73 \times 5}{2} = \frac{365}{2} =$ ₹ 182·50

Thus, the total cost of books is ₹ 182·50.

18. **No. of males = $3x$**

No. of females = $7x$, Total no. of persons = 1000

$\therefore \quad 3x + 7x = 1000$

$10x = 1000$

$x = \frac{1000}{10} = 100$

$\therefore$ Hence, No. of males = $3x = 3\times100 = 300$, No. of females = $7x = 7\times100 = 700$

19. No. of students = 8550
Money deposite by each student = ₹ 4450, Total fee = ₹ 4450 × 8550
Hence, the total fee of the school is ₹ 38047500.

20. No. of cancelled votes = 3591376, No. of right votes = 12594378
No. of persons who did not vote = 234512
$\therefore$ Total no of voters = 12594378 + 3591376 + 234512 = 16420266
$\therefore$ 16420266 voters were in that voting centre.

21. Cost of 1 fan = ₹ 436
No. of fans for ₹ 23108 = 23108 ÷ 436 = 53
Hence, A dealer can purchase 53 fans.

22. Total No. of students = 3025
We have, No. of students = No. of rows
So the no. of students in a row = $\sqrt{3025} = \sqrt{5\times5\times11\times11} = 5\times11 = 55$
Hence, There are 55 students in a row.

17. UNITARY METHOD

Exercise - 35

1. Cost of 1 m cloth = ₹ 60
$\therefore$ Cost of 5 m cloth = ₹ 60 × 5 = ₹ 300

2. Cost of a biscuit box = ₹ 20
$\therefore$ Cost of 7 biscuit boxes = ₹ 20 × 7 = ₹ 140

3. Cost of 1 kg sugar = ₹ 18
$\therefore$ Cost of 8 kg sugar = ₹ 18 × 8 = ` 144

4. Cost of a sac = ₹ 70
$\therefore$ Cost of 15 sacs = ₹ 70 × 15 = ₹ 1050

5. Distance covered in an hour = 7 km
$\therefore$ Distance covered in 5 hours = 7 × 5 km = 35 km

6. Cost of 5 eggs = ₹ 15
Cost of an egg = ₹ 15 ÷ 5 = ₹ 3

7. Quantity of oil in 5 tins = 70 l
$\therefore$ Quanity of oil in 1 tin = 70 ÷ 5 l = 14 l

8. Cost of 15 things = ₹ 240
Cost of one thing = ₹ 240 ÷ 15 = ₹ 16.

9. Length of cloth of make a pant = 1 m 40 cm
$\therefore$ Length of cloth to make 5 pants = 1 m 40 cm × 5 = 7 m 00 cm = 7 m

10. Cost of 9 chocolates = ₹ 90
$\therefore$ Cost of 1 chocolate = ₹ 90 ÷9 = ₹ 10

11. Cost of 10 kg potatoes = ₹ 50
$\therefore$ Cost of 1 kg potatoes = ₹ 50 ÷ 10 = ₹ 5

Exercise - 36

1. Cost of 15 m cloth = ₹ 1230
Cost of 1 m cloth = ₹ 1230 ÷ 15 = ₹ 82
$\therefore$ Cost of 20 m cloth = ₹ 82 × 20 = ₹ 1640

2. Cost of 25 pens = ₹ 625
Cost of 1 pen = ₹ 625 ÷ 25 = ₹ 25
$\therefore$ Cost of 15 pens = ₹ 25 × 15 = ₹ 375

3. Cost of 1 dozen eggs = ₹ 27·60
Cost of an egg = ₹ 27·60 ÷ 12 = ₹ 2·30
$\therefore$ Cost of 9 eggs = ₹ 2·30 × 9 = ₹ 20·70

4. Wages of 15 labours = ₹ 645
Wages of 1 labours = ₹ 645 ÷ 15 = ₹ 43
$\therefore$ Wages of 7 labours = ₹ 43 × 7 = ₹ 301

5. Weight of 8 TV sets = 108 kg
Weight of 1 TV set = 108 kg ÷ 8 = 13·5 kg
$\therefore$ Weight of 20 TV sets = 13·5 × 20 kg = 270·00 kg

6. Distance covered in 4 times of field = 1600 m
Distance covered in 1 time of field = 1600 m ÷ 4 = 400 m
$\therefore$ Distance covered in 20 times of filed = 400 × 20 m = 8000 m

7. Capacity of 15 glass milk = 5 l 400 ml
Capacity of 1 glass milk = 5 l 400 ml ÷ 15

8. Cost of 10 shirts = ₹ 3450
Cost of 1 shirt = ₹ 3450 ÷ 10 = ₹ 345

$= 0{\cdot}360\ l$

∴ Capacity of 8 glass milk $= 0{\cdot}360 \times 8$

$= 2{\cdot}880\ l$

9. Fee of 25 students = ₹ 4000

Fee of 1 student = ₹ 4000 ÷ 25 = ₹ 160

∴ Fees of 30 students = ₹ 160 × 30 = ₹ 4800

10. Cost of 1 quintal rice = ₹ 1500

Cost of 1 kg rice = ₹ 1500 ÷100 = ₹ 15

∴ Cost of 50 kg rice = ₹ 15 × 50 = ₹ 750

11. Cost of 20 toys = ₹ 810

Cost of 1 toy = ₹ 810 ÷20 = ₹ 40·5

∴ Cost of 25 toys = ₹ 40·5 × 25 = ₹ 1012·5

12. The fare of 10 men = ₹ 514

The fare of 1 man = ₹ 514 ÷ 10 = ₹ 51·4

∴ The fare of 17 men = ₹ 51·4 × 17 = ₹ 873·8

13. Cost of 6 kg potatoes = ₹ 42

Cost of 1 kg potatoes = ₹ 42 ÷ 6 = ₹ 7

∴ Cost of 15 kg potatoes = ₹ 7 × 15 = ₹ 105

∴ Cost of 25 shirts = ₹ 345 × 25 = ₹ 8625

18. PERCENTAGE

Exercise - 37

Complete the table

Fraction		Fraction of 100 equivalent denominator	Percent	Fraction		Fraction of 100 Equivalent denominator	Percent
1.	$\frac{1}{2}$	$=\frac{1\times50}{2\times50}=\frac{50}{100}=50\%$	50%	6.	$\frac{1}{5}$	$=\frac{1\times20}{5\times20}=\frac{20}{100}=20\%$	20%
2.	$\frac{3}{10}$	$=\frac{3\times10}{10\times10}=\frac{30}{100}=30\%$	30%	7.	$\frac{1}{4}$	$=\frac{1\times25}{4\times25}=\frac{25}{100}=25\%$	25%
3.	$\frac{7}{25}$	$=\frac{7\times4}{25\times4}=\frac{28}{100}=28\%$	28%	8.	$\frac{9}{300}$	$=\frac{3}{100}=3\%$	3%
4.	$\frac{9}{20}$	$=\frac{9\times5}{20\times5}=\frac{45}{100}=45\%$	45%	9.	$\frac{40}{500}$	$=\frac{8}{100}=8\%$	8%
5.	$\frac{3}{10}$	$=\frac{3\times10}{10\times10}=\frac{30}{100}=30\%$	30%	10.	$\frac{16}{25}$	$=\frac{16\times4}{25\times4}=\frac{64}{100}=64\%$	64%

Exercise - 38

Change the following fractions as percent :

1. $\frac{7}{8}=\frac{7}{8}\times100\%=\frac{700}{8}\%=87{\cdot}50\%$

2. $\frac{1}{5}=\frac{1}{5}\times100\%=20\%$

3. $\frac{9}{10}=\frac{9}{10}\times100\%=\frac{900}{10}\%=90\%$

4. $\frac{7}{12}=\frac{7}{12}\times100\%=\frac{700}{12}\%=58{\cdot}33\%$

5. $\frac{25}{16}=\frac{25}{16}\times100\%=\frac{2500}{16}=156{\cdot}25\%$

6. $\frac{23}{20}=\frac{23}{20}\times100\%=23\times5\%=115\%$

7. $\frac{19}{20}=\frac{19}{20}\times100\%=19\times5\%=95\%$

8. $\frac{3}{4}=\frac{3}{4}\times100\%=3\times25\%=75\%$

9. $\frac{5}{8}\times100\%=\frac{500}{8}\%=62{\cdot}5\%$

Exercise - 39

Change into Simple fraction :

1. $15\%=15\times\frac{1}{100}=\frac{15}{100}=\frac{3}{20}$

2. $20\%=20\times\frac{1}{100}=\frac{20}{100}=\frac{1}{5}$

3. $60\% = 60 \times \frac{1}{100} = \frac{60}{100} = \frac{3}{5}$

4. $10\% = 10 \times \frac{1}{100} = \frac{10}{100} = \frac{1}{10}$

5. $25\% = 25 \times \frac{1}{100} = \frac{1}{4}$

6. $35\% = 35 \times \frac{1}{100} = \frac{35}{100} = \frac{7}{20}$

7. $45\% = 45 \times \frac{1}{100} = \frac{45}{100} = \frac{9}{20}$

8. $125\% = 125 \times \frac{1}{100} = \frac{125}{100} = \frac{5}{4}$

9. $250\% = 250 \times \frac{1}{100} = \frac{250}{100} = \frac{50}{20} = \frac{5}{2}$

Exercise - 40

Express the following as Percent :

1. $0{\cdot}65 = 0{\cdot}65 \times 100\% = 65{\cdot}00\%$

2. $0{\cdot}5 = 0{\cdot}5 \times 100\% = 50{\cdot}0\%$

3. $0{\cdot}34 = 0{\cdot}34 \times 100\% = 34{\cdot}00\%$

4. $1{\cdot}3 = 1{\cdot}3 \times 100\% = 130{\cdot}0\%$

5. $0{\cdot}3 = 0{\cdot}3 \times 100\% = 30{\cdot}0\%$

6. $4{\cdot}57 = 4{\cdot}57 \times 100\% = 457{\cdot}00\%$

7. $0{\cdot}8 = 0{\cdot}8 \times 100\% = 80{\cdot}0\%$

8. $0{\cdot}95 = 0{\cdot}95 \times 100\% = 95{\cdot}00\%$

9. $0{\cdot}05 = 0{\cdot}05 \times 100\% = 5{\cdot}00\%$

Exercise - 41

Express the following as decimals :

1. $12\% = \frac{12}{100} = 0{\cdot}12$

2. $125\% = \frac{125}{100} = 1{\cdot}25$

3. $310\% = \frac{310}{100} = 3{\cdot}10$

4. $65\% = \frac{65}{100} = 0{\cdot}65$

5. $48\% = \frac{48}{100} = 0{\cdot}48$

6. $5\% = \frac{5}{100} = 0{\cdot}05$

7. $3\% = \frac{3}{100} = 0{\cdot}03$

8. $210\% = \frac{210}{100} = 2{\cdot}10$

9. $720\% = \frac{720}{100} = 7{\cdot}20$

Exercise - 42

Complete the table :

S.No.	Fraction	100 denominator equal fraction	Percentage	Decimal
1.	$\frac{7}{10}$	$\frac{70}{100}$	70%	0·70
2.	$\frac{9}{20}$	$\frac{45}{100}$	45%	0·45
3.	$\frac{9}{10}$	$\frac{90}{100}$	90%	0·90
4.	$\frac{4}{5}$	$\frac{80}{100}$	80%	0·8
5.	$\frac{7}{10}$	$\frac{70}{100}$	70%	0·70
6.	$\frac{19}{20}$	$\frac{95}{100}$	95%	0·95
7.	$\frac{25}{2}$	$\frac{1250}{100}$	1250%	12·5

Exercise - 43

Find the value of the following :

1. 25% of 60 m
$= 25 \times \frac{1}{100} \times 60$ m
$= \frac{60}{4}$ m = 15 m

2. 70% of 410 kg
$= 70 \times \frac{1}{100} \times 410$ kg
$= 7 \times 41 = 287$ kg

3. 18% of 450 kg
$= 18 \times \frac{1}{100} \times 450$ kg
$= \frac{18 \times 45}{10} = \frac{18 \times 9}{2} = 81$ kg

4. 75% of Rs 200
$= 75 \times \frac{1}{100} \times 200$ Rs
$= 75 \times 2 = 150$ Rs

5. 30% of 900 m
$= 30 \times \frac{1}{100} \times 900$ m
$= 30 \times 9 = 270$ m

6. 150% of 500 l
$= 150 \times \frac{1}{100} \times 500\ l$
$= 150 \times 5\ l = 750\ l$

Exercise - 44

1. Total marks of Rajan = 75 % of 1500
$= \frac{75}{100} \times 1500 = 75 \times 15 = 1125$

2. Total no. of correct questions = 25% of 600
$= \frac{25}{100} \times 600 = 25 \times 6 = 150$

3. Total no. of trees = 400
Total no. of apple trees = 280
$\therefore$ Percentage of apple trees
$= \frac{280}{400} \times 100\% = \frac{280}{4} = 70\%$

4. Total weight of mixture = 2 g + 8 g = 10 g
$\therefore$ Salt percentage in mixture
$= \frac{2}{10} \times 100\% = 2 \times 10 = 20\%$

5. The total expenses = 85 % of 2600 Rs.
$= \frac{85}{100} \times 2600$ Rs $= 85 \times 26 = 2210$ Rs.

6. Total no. of correct solved questions
= 75 % of 40 $= \frac{75}{100} \times 40 = \frac{75}{10} \times 4 = \frac{75}{5} \times 2$
$= 15 \times 2 = 30$

7. Percentage of wrong questions
$= \frac{140}{280} \times 100\% = \frac{100}{2} = 50\%$

8. Total no. of coloured pages = 25 % of 256
$= \frac{25}{100} \times 256 = \frac{256}{4} = 64$

9. Total weight of rice = 100 kg
Total weight of spoiled rice
$= \frac{1}{4} \times 100 = 25$ kg
$\therefore$ Percentage of spoiled rice
$= \frac{25}{100} \times 100\% = 25\%$

10. The total required amount = 15 % of
₹ 25000 $= \frac{15}{100} \times 25000 = 15 \times 250 =$ ₹ 3750

19. PROFIT-LOSS

Exercise - 45

(a) Shopkeeper bought and sold the following things. Help him to calculate profit or loss :

Things Name	C.P. (in ₹)	S.P. (in ₹)	Profit (in ₹)	Loss (in ₹)
1. Gysor	275·25	310·25	Profit = S.P. – C.P. = ₹ [310·25 – 275·25] = ₹35	—
2. T.V.	3999·75	4293·60	Profit = S.P. – C.P. = ₹ [4293·60 – 3999·75] = 293·85	—
3. Press	443·25	410·75	—	Loss = C.P. – S.P. = ₹ [443·25 – 410·75] = 32·50
4. Heater	312·60	300·10	—	Loss = C.P. – S.P. = ₹ [312·60 0 300·10] = ₹ 12·50

5.	Radio	625·80	710·15	Profit = S.P. – C.P. = ₹ [710·15 – 625·80] = ₹84·35	—
6.	Chairs	2698·00	2600·00	—	Loss = C.P. – S.P. = ₹ [2698 – 2600] = ₹ 98
7.	Fan	2866·00	2760·00	—	Loss = C.P. – S.P. = ₹ [2866 – 2760] = ₹106
8.	Cooler	5825·00	6000·00	Profit = S.P. – C.P. = ₹[6000 – 5825] = ₹ 175	—
9.	Mixer	2165·00	2100·00	—	Loss = C.P. – S.P. = ₹[2165 – 2100] = ₹ 65
10.	Double bed	9798·25	10000·00	Profit = S.P. – C.P. = ₹ [10000 – 9798·25] = ₹ 201·75	—

(b) Find profit and loss percentage :

Things Name		C.P. (in ₹)	S.P. (in ₹)	Profit/Loss (in ₹)	Profit/Loss Percentage (%)
1.	Apple	4·00	5·00	Profit = 1·00	$100 \times \frac{1}{4} = 25\%$
2.	Cheeku	8·00	10·00	Profit = 2·00	$100 \times \frac{2}{8} = 25\%$
3.	Banana	15·00	12·00	Loss = 3·00	$100 \times \frac{3}{15} = 20\%$
4.	Grapes	16·00	20·00	Profit = 4·00	$100 \times \frac{4}{16} = 25\%$
5.	Litchi	2·00	3·00	Profit = 1·00	$100 \times \frac{1}{2} = 50\%$
6.	Guava	40·00	32·00	Loss = 8·00	$100 \times \frac{8}{40} = 20\%$
7.	Pear	5·00	6·00	Profit = 1·00	$100 \times \frac{1}{5} = 20\%$
8.	Tomato	10·00	11·00	Profit = 1·00	$100 \times \frac{1}{10} = 10\%$
9.	Mango	20·00	25·00	Profit = 5·00	$100 \times \frac{5}{20} = 25\%$
10.	Onion	50·00	60·00	Profit = 10·00	$100 \times \frac{10}{50} = 20\%$

(c) Find the S.P. :
Do Yourself.

Exercise - 46

1. C.P. of bananas = ₹ 800
S.P. of bananas = ₹ 860
Profit = S.P. – C.P.
= ₹ (860 – 800) = ₹ 60

2. C.P. of 200 kg vegetables = ₹ 500
If 25 kg vegetables destroyed then weight of remianing vegetables = 200 – 25 = 175 kg
∴ S.P. of 175 kg = 4 × 175 = 700 Rs.
Here S.P. > C.P.
∴ Profit = S.P. – C.P. = ₹ [700 – 500]
= ₹ 200

3. C.P. of flowers = ₹ 400
Profit = ₹ 200
Total S.P. = C.P. + Profit = ₹ (400 + 200)
= ₹ 600
S.P. of 20 vases = ₹ 600
S.P. of 1 vase = ₹ 600 ÷ 20 = ₹ 30

4. C.P. of motor bike = ₹ 1200
Expense on repairing = ₹ 3450
Total C.P. = ₹ [1200 + 3450] = ₹ 4650
Profit = ₹ 1200
S.P. = C.P. + Profit = ₹ [4650 + 1200]
= ₹ 5850

5. C.P. of motor car = ₹ 65500
S.P. of motor car = ₹ 60000
Here C.P. > S.P.
Loss = C.P. – S.P.
= ₹ [65500 – 60000] = ₹ 5500

6. C.P. of vegetables = ₹ 400
S.P. of vegetables = ₹ 500
So Profit = S.P. – C.P.
= ₹ [500 – 400] = ₹ 100
Now, Profit $= \frac{\text{Profit}}{\text{C.P.}} \times 100\% = \frac{100}{400} \times 100\%$
$= \frac{100}{4} = 25\%$

7. C.P. of coconuts = ₹ 1200, S.P. of coconuts = ₹ 1080
Here C.P. > S.P. So Loss = C.P. – S.P. = ₹ [1200 – 1080] = ₹ 120
Loss % $= \frac{\text{Loss}}{\text{C.P.}} \times 100\% = \frac{120}{1200} \times 100\% = \frac{120}{12} = 10\%$

20. SIMPLE INTEREST

Exercise - 47

(a) Find the simple Interest :

Principle (in ₹)	Rate (Annually)	Time (in years)	S.I. $= \frac{P \times R \times T}{100}$
1. 4,000	4%	3	S.I. $= \frac{P \times R \times T}{100} = \frac{4000 \times 4 \times 3}{100} = 40 \times 4 \times 3 =$ ₹ 480
2. 12,000	2%	2	S.I. $= \frac{P \times R \times T}{100} = \frac{12000 \times 2 \times 2}{100} = 120 \times 2 \times 2 =$ ₹ 480
3. 9,000	12%	4	S.I. $= \frac{P \times R \times T}{100} = \frac{9000 \times 12 \times 4}{100} = 90 \times 12 \times 4 =$ ₹ 4320
4. 48,000	9·5%	6	S.I. $= \frac{P \times R \times T}{100} = \frac{48000 \times 9 \cdot 5 \times 6}{100} = 480 \times 9 \cdot 5 \times 6 =$ ₹ 27360
5. 7,000	7%	3	S.I. $= \frac{P \times R \times T}{100} = \frac{7000 \times 7 \times 3}{100} = 70 \times 7 \times 3 =$ ₹ 1470
6. 56,000	8·5%	5	S.I. $= \frac{P \times R \times T}{100} = \frac{56000 \times 8 \cdot 5 \times 5}{100} = 560 \times 8 \cdot 5 \times 5 =$ ₹ 23800
7. 63,000	15%	4	S.I. $= \frac{P \times R \times T}{100} = \frac{63000 \times 15 \times 4}{100} = 630 \times 15 \times 4 =$ ₹ 37800
8. 14,00,000	8%	2	S.I. $= \frac{P \times R \times T}{100} = \frac{1400000 \times 8 \times 2}{100} = 14000 \times 8 \times 2 =$ ₹ 224000
9. 23,000	9%	8	S.I. $= \frac{P \times R \times T}{100} = \frac{23000 \times 9 \times 8}{100} = 230 \times 9 \times 8 =$ ₹ 16560

10. 4,80,000	3%	1	S.I. $= \frac{P \times R \times T}{100} = \frac{480000 \times 3 \times 1}{100} = 4800 \times 3 \times 1 =$ ₹ 14400

(b) Find the Amount :

Principle (in ₹)	Rate (Annually)	Time (in years)	S.I. $= \frac{P \times R \times T}{100}$	Amount
1. 4,000	12%	4	1,920	Amount = P × I = ₹ [4000 + 1920] = ₹ 5920
2. 12,000	15%	3	5,400	Amount = P × I = ₹ [12000 + 5400] = ₹17400
3. 6,000	21%	2	2,520	Amount = P × I = ₹ [6000 + 2520] = 8520
4. 9,000	10%	4	3,600	Amount = P × I = ₹ [9000 + 3600] = ₹ 12600
5. 16,620	10%	2	3,324	Amount = P × I = ₹ [16620 + 3324] = ₹ 19944
6. 28,000	12%	3	1,00,80	Amount = P × I = ₹ [28000 + 10080] = ₹ 38080
7. 1,20,000	13%	5	78,000	Amount = P × I = ₹ [120000 + 78000] = ₹ 198000
8. 2,40,000	20%	2	96,000	Amount = P × I = ₹ [240000 + 96000] = ₹ 336000

Exercise - 48

1. P = ₹ 22,000; R = 15%; T = 2 years

S.I. $= \frac{P \times R \times T}{100} = \frac{22000 \times 15 \times 2}{100}$

$= 220 \times 15 \times 2 =$ ₹ 6600

Amount = P + I = ₹ [22000 + 6600]

= ₹ 28600

2. P = ₹ 1600; Rate = 25%; T = 3 years

S.I. $= \frac{P \times R \times T}{100} = \frac{1600 \times 25 \times 3}{100}$

$= 16 \times 25 \times 3 =$ ₹ 1200

Amount = P + I = ₹ [1600 + 1200] = ₹ 2800

3. P = ₹ 1800; R = 14 %; T = 3 years

S.I. $= \frac{P \times R \times T}{100} = \frac{1800 \times 14 \times 3}{100}$

$= 18 \times 14 \times 3 =$ ₹ 756

Amount = P + I = ₹ [1800 + 756]

= ₹ 2556

4. P = ₹ 1,20,000; R = 8%; T = 3 years

S.I. $= \frac{P \times R \times T}{100} = \frac{120000 \times 8 \times 3}{100}$

$= 1200 \times 8 \times 3 =$ ₹ 28800

Amount = P + I = ₹ [120000 + 28800]

= ₹ 148800

5. P = ₹ 600; R = 15%; T = 3 years

S.I. $= \frac{P \times R \times T}{100} = \frac{600 \times 15 \times 3}{100}$

$= 6 \times 15 \times 3 =$ ₹ 270

Amount = P + I = ₹ [600 + 270]

= ₹ 870

6. P = ₹ 800000; R = 12%; T = 4 years

S.I. $= \frac{P \times R \times T}{100} = \frac{800000 \times 12 \times 4}{100}$

$= 8000 \times 12 \times 4 =$ ₹ 384000

Amount = P + I = ₹ [800000 + 384000]

= ₹ 1184000

7. P = ₹ 90000, R = 4%, T = 4 years

S.I. $= \frac{P \times R \times T}{100} = \frac{90000 \times 4 \times 4}{100}$

$= 900 \times 4 \times 4 =$ ₹ 14400

Amount = P + I = ₹ [90000 + 14400]

= ₹ 104400

8. P = ₹ 16,000; R = 18%; T = 2 years

S.I. $= \frac{P \times R \times T}{100} = \frac{16000 \times 18 \times 2}{100}$

$= 160 \times 18 \times 2 =$ ₹5760

Amount = P + I = ₹ [16000 + 5760]

= ₹ 21760

9. P = ₹ 16000; R = 8%; T = 3 years

S.I. $= \frac{P \times R \times T}{100} = \frac{16000 \times 8 \times 3}{100}$

$= 160 \times 8 \times 3 =$ ₹ 3840

10. P = ₹ 20000; R = 25%; T = 2 years

S.I. $= \frac{P \times R \times T}{100} = \frac{20000 \times 25 \times 2}{100}$

$= 200 \times 25 \times 2 =$ ₹ 10000

21. BILL

Exercise - 49

Here are given some bills. Check and correct them :

1. Chandra Provision Store

Bill no. 873 8, Main Bazar, Banglore

Phone-761522

Name and Address : Smt. Dixit, 28 Police line Banglore Date : 12/07/2014

S. No.	Things Name	Quantity/ Number	Rate per unit	Amount (₹)
1.	Soap	3 Cake	₹ 8·50	25·50
2.	Cream	2 Tube	₹ 25·20	50·40
3.	Toothpaste	5 Tube	₹ 15·75	78·75
4.	Biscuits	2 Packet	₹ 12·90	25·80
5.	Sugar	2½ Kg	₹ 15·50	38·75
			Total	₹ 219·20

Sign. ChandraProvision Store

2. Naseem Provision Store

Bill No. 411 12, Jagriti Vihar, New Delhi

Name and Address : Mr. Ravat Date : 07/04/2014

S. No.	Things names	Quantity/ Number	Rate per unit	Amount (₹)
1.	Hanger	6 Packet	₹ 2·25	13·50
2.	Washing Powder	1½ kg	₹ 31·90	47·85
3.	Sauce	4 Bottle	₹ 11·25	45·00
4.	Pickle	2 Bottle	₹ 18·50	37·00
			Total	₹ 143·35

Sign. Naseem Provision Store

Exercise - 50

Make Bill for the following :

1. **Rajsi Prakashan**
Bill No. 654 Delhi Road, Agra
Phone — 649963

Name and Address : ABC Book Store, 94, Sahani Gate, Agra **Date :** 06/05/2014

S. No.	Things Name	Quantity/Number	Rate per unit	Amount (₹)
1.	Knowledge of script	100	₹ 25·00	2500·00
2.	Learning Math	200	₹ 24·00	4800·00
3.	Knowledge of language	150	₹ 28·00	4200·00
4.	Moral Science	100	₹ 20·00	2000·00
5.	English Reader	200	₹ 55·00	11000·00
			Total	₹ 24500·00

Sign Rajsi Prakashan

2. **Hari Provision Store**
Bill No. 469 12, Akbar Road, New Delhi
Phone—224285

Name and Address : Shri Rao, Hari colony, New Delhi **Date :** 08/08/2014

S. No.	Things Name	Quantity/Number	Rate per kg	Amount (₹)
1.	Tea	½ kg	₹ 150·00	75·00
2.	Sugar	5 kg	₹ 27·50	137·50
3.	Milk	2 kg	₹ 12·00	24·00
4.	Flour	10 kg	₹ 9·50	95·00
5.	Coffee	½ kg	₹ 160·00	80·00
6.	Cheese	¾ kg	₹ 60·00	45·00
			Total	₹ 456·50

Sign Hari Provision Store

3. **Action Shoe Company**
Bill No.285 12, New State, Noida
Phone—440245

Name and Address : Chandra Shoe Store, Meerut **Date :** 14/05/2014

S. No.	Things Name	Quantity/Number	Rate per unit	Amount (₹)
1.	Chappal	100	₹ 40·00	4000·00
2.	Jogging shoe	50	₹ 120·00	6000·00
3.	Sports Shoe	50	₹ 480·00	24000·00
4.	Shoe (Leather)	30	₹ 799·00	23970·00

5.	Lady Shoe	100	₹ 444·00	44400·00
6.	Baby Shoe	200	₹ 197·00	39400·00
			Total	₹ 141770·00

Sign Action Shoe Company

4. **Jeetu General Store**

Bill No.285 4, Subhash Chandra Bose Road, Kolkata
Phone—700023

Name and Address : Sri Vinayak **Date :** 22/08/2014

S. No.	Things Name	Quantity	Rate per unit	Amount (₹)
1.	Colgate	2	₹ 22·50	45·00
2.	Gum	4	₹ 9·25	37·00
3.	Fevicol	2	₹ 114·75	229·50
4.	Hair dye	6	₹ 5·50	33·00
5.	Bread	2	₹ 12·90	25·80
6.	Butter	4	₹ 25·60	102·40
			Amount	₹ 472·70

Sign Jeetu General Store

22. SPEED, DISTANCE AND TIME

Exercise - 51

1. Change the following speed in m/s :

(a) $36 \text{ km/h} = 36 \times \frac{1000}{60 \times 60} = \frac{36 \times 1000}{3600} = \frac{36 \times 10}{36} = 10 \text{ m/s}$

(b) $60 \text{ km/h} = 60 \times \frac{1000}{60 \times 60} = \frac{60 \times 1000}{3600} = \frac{600}{36} = 16 \cdot 6 \text{ m/s}$

(c) $72 \text{ km/h} = 72 \times \frac{1000}{60 \times 60} = \frac{72 \times 1000}{3600} = \frac{72 \times 10}{36} = 2 \times 10 = 20 \text{ m/s}$

2. Change the following speed in km/h :

(a) $30 \text{ m/s} = 30 \times \frac{60 \times 60 \text{ km}}{1000 \text{ h}} = \frac{30 \times 3600}{1000} = 3 \times 36 = 108 \text{ km/h}$

(b) $90 \text{ m/s} = 90 \times \frac{60 \times 60 \text{ km}}{1000 \text{ h}} = \frac{90 \times 3600}{1000} = 9 \times 36 = 324 \text{ km/h}$

3. Distance = 300, Time = 40 s

$\therefore$ Speed $= \frac{\text{Distance}}{\text{Time}} = \frac{300 \text{ m}}{40 \text{ s}} = \frac{300}{40} \times \frac{60 \times 60 \text{ km}}{1000 \text{ h}} = \frac{300 \times 3600}{40 \times 1000} = \frac{3 \times 36}{4} = 3 \times 9 = 27 \text{ km/h}$

4. Distance = 108 km, Time = 2 hours

$\therefore$ Speed $= \frac{\text{Distance}}{\text{Time}} = \frac{108 \text{ km}}{2 \text{ hours}} = \frac{108 \times 1000 \text{ m}}{60 \times 60 \text{ sec}} = \frac{108 \times 1000}{2 \times 3600} = \frac{108 \times 5}{36} = 3 \times 5 = 15 \text{ m/sec}$

5. Distance between Agra and Delhi = 300 km

Train coverred distance in time = 4 h 40 min = 4 h + $\frac{40}{60}$ h = 4 h + 0·666 h = 4·666 h

$\therefore$ Speed $= \frac{\text{Distance}}{\text{Time}} = \frac{300 \text{ km}}{4 \cdot 666 \text{ h}} = 64 \cdot 29 \text{ km/h}.$

6. Distance $= \frac{9}{10}$ km = 0· km, Time = 3 minutes = $\frac{3}{60}$ h = 0·05 h

$\therefore$ Speed $= \frac{\text{Distance}}{\text{Time}} = \frac{0 \cdot 9 \text{ km}}{0 \cdot 05 \text{ h}} = 18$ km/h

7. Distance between Patna and Agra = 60 Km

Train taken to cover distance = 2 h 30 min = 2 h + $\frac{30}{60}$ h = (2 + 0·5) h = 2·5 h

$\therefore$ Speed $= \frac{\text{Distance}}{\text{Time}} = \frac{60 \text{ km}}{2 \cdot 5 \text{ h}} = \frac{600}{25} = 24$ km/h

8. Distance = 2 km, Time = 30 minutes = $\frac{30}{60}$ h = 0·5 h

$\therefore$ Speed $= \frac{\text{Distance}}{\text{Time}} = \frac{2 \text{ km}}{0 \cdot 5 \text{ h}} = \frac{20}{5} = 4$ km/h

9. Distance covered by Ramesh = 10000 m, Time taken = 25 minutes

$\therefore$ Speed $= \frac{\text{Distance}}{\text{Time}} = \frac{10000 \text{ m}}{25 \text{ m}} = 400$ m/m

10. Distance covered by Rajesh = 400 km

Time taken = 4 hours

$\therefore$ Speed $= \frac{\text{Distance}}{\text{Time}} = \frac{400 \text{ km}}{4 \text{ hours}} = 100$ km/hr

11. Speed of an aeroplane = 800 m/s

Speed of an aeroplane in km/h $= 800 \times \frac{60 \times 60}{1000} = 8 \times 60 \times 6 = 2880$ km/hr

12. Speed of a train = 60 km/h, Time = 5 hours

$\therefore$ Speed $= \frac{\text{Distance}}{\text{Time}}$

Distance = Speed × Time = 60 × 5 km = 300 km

13. Time taken by an aeroplane = 40 min = $\frac{40}{60}$ hr = 0·666 hr

Speed of an aeroplane = 480 km/h

$\therefore$ Distance = Speed × Time = 480 × 0·666 km

14. Average speed = 50 km/h

Time taken by express = 20 hours

$\therefore$ Distance between Delhi and Patna is :

Distance = speed × time = 50 × 20 = 1000 km

15. Speed of horsecart = 10 km/h

Time taken = 4 h 30 min = 4 hr + $\frac{30}{60}$ hr = (4 + 0·5) hr = 4·5 hr

$\therefore$ Distance = Speed × Time = 10 × 4·5 km = 45·0 km

16. Speed of train = 75 km/h, Time taken = 5 h 30 min = $\left(5\text{h} + \frac{30}{60}\text{h}\right) = (5 + 0 \cdot 5) = 5 \cdot 5$ hr

$\therefore$ Distance = Speed × Time = 75 × 5·5 km = 412·50 km

23. TEMPERATURE

Exercise - 52

1. Fill in the blanks :

(i) Temperature, (ii) Clinical, (iii) Fahrenheit

2. Convert the temperature given below in Fahrenheit Scale :

(i) 60°C (ii) 100°C

We have °F = $\frac{9}{5}$°C + 32

$= \frac{9}{5} \times 60 + 32 = 108 + 32 = 140$ °F

(iii) 50°C

We have °F = $\frac{9}{5}$°C + 32

$= \frac{9}{5} \times 50 + 32 = 90 + 32 = 122$ °F

We have °F = $\frac{9}{5}$°C + 32

$= \frac{9}{5} \times 100 + 32 = 180 + 32 = 212$ °F

(iv) 85°C

We have °F = $\frac{9}{5}$°C + 32

$= \frac{9}{5} \times 85 + 32 = 9 \times 17 + 32 = 153 + 32 = 185$ °F

3. Convert the temperature given below in Celsius Scale :

(i) 77°F

We have °C = $\frac{5}{9}$ (°F – 32)

$= \frac{5}{9} \times (77 - 32) = \frac{5}{9} \times 45 = 5 \times 5 = 25$ °C

(ii) 86°F

We have °C = $\frac{5}{9}$ (°F – 32)

$= \frac{5}{9} \times (86 - 32) = \frac{5}{9} \times 54 = 5 \times 6 = 30$ °C

(iii) 212°F

We have °C = $\frac{5}{9}$ (°F – 32)

$= \frac{5}{9} \times (212 - 32) = \frac{5}{9} \times 180 = 5 \times 20 = 100$ °C

(iv) 122°F

We have °C = $\frac{5}{9}$ (°F – 32)

$= \frac{5}{9} \times (122 - 32) = \frac{5}{9} \times 90 = 5 \times 10 = 50$ °C

4. Convert the temperatures of the following in °C and °F :

(i) Freezing point of water in °C = 0°C

and freezing point of water in °F = $\frac{9}{5} \times 0 + 32 = 0 + 32 = 32$ °F

(ii) Boiling point of water in °C = 100°C

and boiling point of water in °F = $\frac{9}{5} \times 100 + 32 = 9 \times 20 + 32 = 180 + 32 = 212$ °F

(iii) Normal body temperature of human beings in °C = 37°C

Normal body temperature of human beings in °F = $\frac{9}{5} \times 37 + 32 = \frac{333}{5} + 32 = 66 \cdot 6 + 32$

$= 98 \cdot 6$ ° F

5. Maximum temperature = 38°C, Minimum temperature = 15°C

Maximum temperature in °F = $\frac{9}{5} \times 38 + 32 = \frac{342}{5} + 32 = 68 \cdot 4 + 32 = 100 \cdot 4$ °F

Minimum temperature in °F = $\frac{9}{5} \times 15 + 32 = 27 + 32 = 59$ °F

6. Maximum temperature = 140°F

Minimum temperature in °C = $\frac{5}{9} \times (140 - 32) = \frac{5}{9} \times 108 = 5 \times 12 = 60$ °C

Minimum temperature = 77 °F

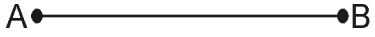
Minimum temperature in °C = $\frac{5}{9} \times (77 - 32) = \frac{5}{9} \times 45 = 5 \times 5 = 25$ °C

∴ Required difference of temperatures = (60 – 25)°C = 35°C

24. LINES AND ANGLES

Exercise - 53

1. Two point are A and B. We can draw only one line passing through these point.

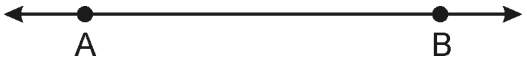


2. Define the following :

(i) A ray : A ray is a straight line which has one end-point and extends endlessly in any one direction.

(ii) A line segment : Any part of a line is called a line segment. It has two end points.

(iii) A line : A line has no end-point. It does not have a fixed length. It can be extended to any length on both sides. The symbol of line is $\overleftrightarrow{AB}$.



(iv) A point : A point is fine dot (.) made by a pointed sharp pencil. A point is so minor that we cannot think of its length, breadth, size and shape. We have to consider its position only.

3. Fill in the blanks :

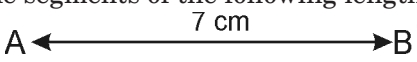
(i) Line (ii) Ray (iii) Line segment (iv) Point (v) Line segment

4. Write the following in symbols :

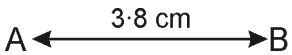
(i) $\overleftrightarrow{AB}$ (ii) $\overline{PQ}$ (iii) $\overrightarrow{EF}$

5. Construct line segments of the following length :

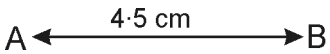
(i) 7 cm



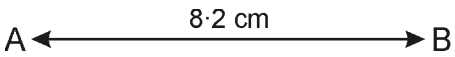
(ii) 3.8 cm



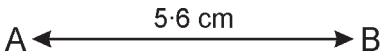
(iii) 4.5 cm



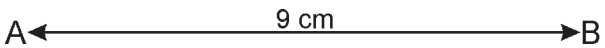
(iv) 8.2 cm



(v) 5.6 cm

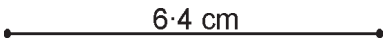


(vi) 9 cm

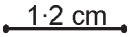


6. If AB = 2.6 cm and CD = 3.8 cm, construct line segment whose length is equal to :

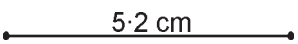
(i) AB + CD = (2·6 + 3·8) cm = 6·4



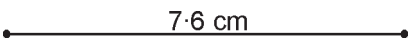
(ii) CD – AB = (3·8 – 2·6) = 1·2 cm



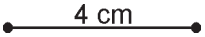
(iii) 2AB = 2×2·6 cm = 5·2 cm



(iv) 2CD = 2×3·8 cm = 7·6 cm



(v) 3 AB – CD = (3×2·6 – 3·8) cm = = (7·8 – 3·8) cm = 4·0 cm

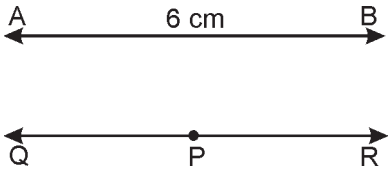


7. Measure and write the length of each of the following line segements :

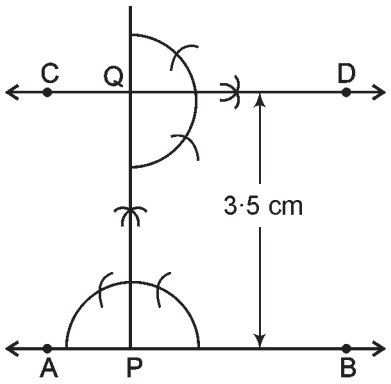
(i) 3·2 cm (ii) 3·2 cm (iii) 3·2 cm (iv) 2·5 cm (v) 5·3 cm

Exercise - 54

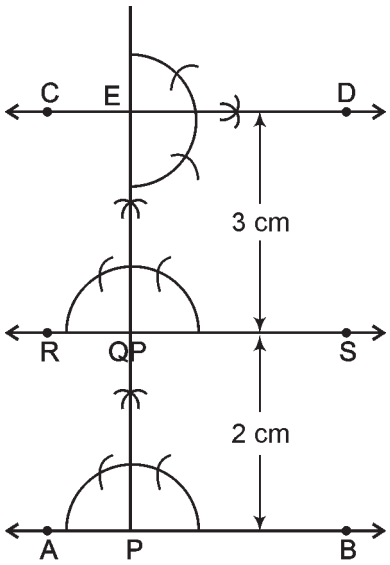
1.



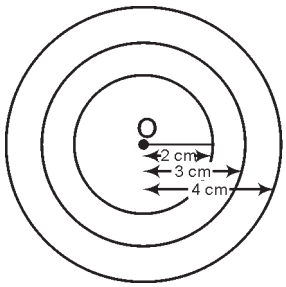
2.



3.

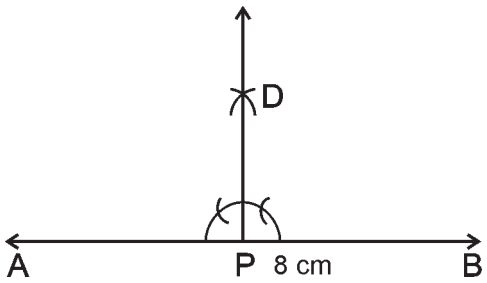


4.

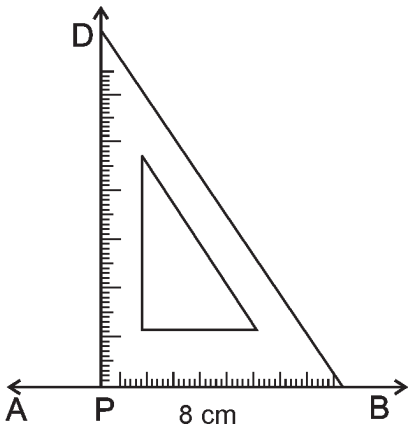


Exercise - 55

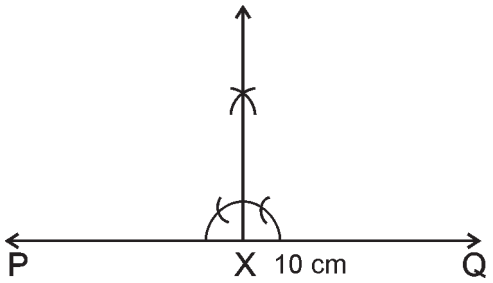
1. (i)



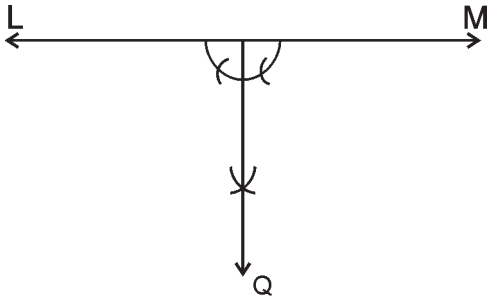
(ii)



2.

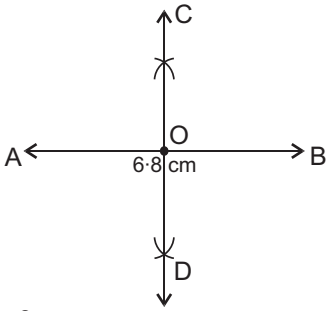


3.

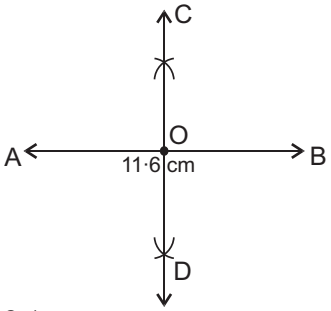


4. Draw the segments whose lengths are given below and bisect each one of them :

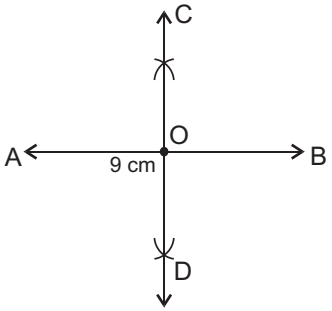
(i) 6.8 cm



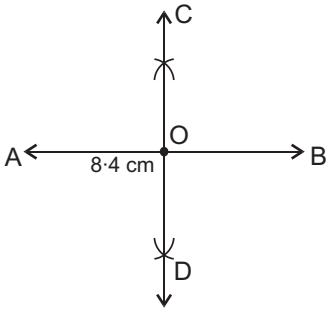
(ii) 11.6 cm



(iii) 9 cm



(iv) 8.4 cm



Exercise - 56

1. Measure the following angles using the protractor :
(i) 45° (ii) 135° (iii) 180° (iv) 270° (v) 0° (vi) 90°

2. About measuring, classify the following angles :
(i) Acute (ii) Right (iii) Acute (iv) Obtuse (v) Straight (vi) Obtuse

3. Write the zero, acute, obtuse, right, straight or reflex angles from the following :
90° = Right 21° = Acute 36° = Acute 165° = Obtuse 180° = Straight
130° = Obtuse 57° = Acute 170° = Obtuse 0° = Zero 215° = Reflex
320° = Reflex

4. Find the points which :
(i) Interior point P and R (ii) Exterior points are T and Q
(iii) Points on ∠AOB and N and S.

5. Fill in the blanks :
(i) Acute (ii) 90° (iii) 180° (iv) Complementary (v) Obtuse
(vi) More than, Less than

6. Write the complementary angle of each of the following angles :
(i) Complementry angles of 45° = 90 – 45° = 55°
(ii) Complementry angles of 54° = 90 – 54° = 36°
(iii) Complementry angles of 89° = 90 – 89° = 1°
(iv) Complementry angles of 72° = 90 – 72° = 18°
(v) Complementry angles of 65° = 90 – 65° = 25°
(vi) Complementry angles of 30° = 90 – 30° = 60°
(vii) Complementry angles of 28° = 90 – 28° = 62°
(viii) Complementry angles of 40° = 90 – 40° = 50°

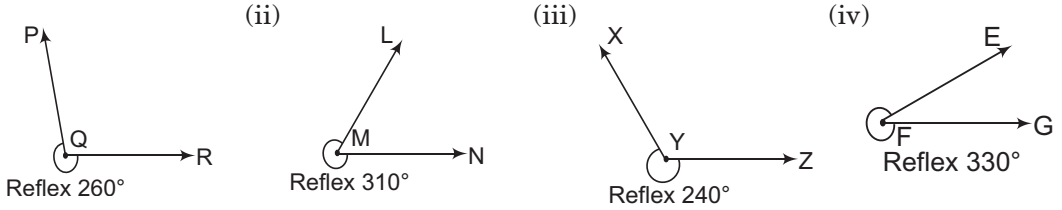
7. Write the supplementary angle of each of the following angles :
(i) Supplementary angle of 25° = 180° – 25° = 155°
(ii) Supplementary angle of 75° = 180° – 75° = 105°
(iii) Supplementary angle of 90° = 180° – 90° = 90°
(iv) Supplementary angle of 110° = 180° – 110° = 70°
(v) Supplementary angle of 160° = 180° – 160° = 20°
(vi) Supplementary angle of 120° = 180° – 120° = 60°
(vii) Supplementary angle of 52° = 180° – 52° = 128°
(viii) Supplementary angle of 68° = 180° – 68° = 112°

8. Choose the pairs of complementary angles and supplementary angles :
(i) 40°, 50° = [40 + 50 = 90] Complementary Angles
(ii) 70°, 110° = [70 + 110 = 180°] Supplementary Angles
(iii) 75°, 105° = [75 + 105 = 180°] Supplementary Angles
(iv) 76°, 14° = [76 + 14 = 90°] Complementary Angles
(v) 20°, 70° = [20 + 70 = 90°] Complementary Angles
(vi) 125°, 55° = [125 + 55 = 180°] Supplementary Angles
(vii) 50°, 130° = [50 + 130 = 180°] Supplementary Angles
(viii) 30°, 60° = [30 + 60 = 90°] Complementary Angles

9. Yes

10. A pair of scissors, compass and two hands of clock

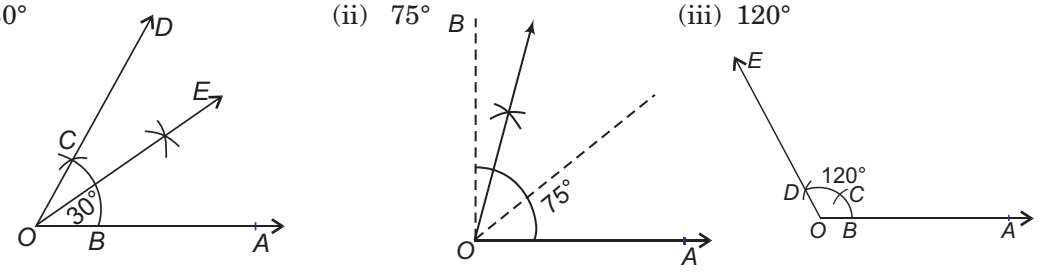
11. Draw the following reflex angles using your protractor as shown in the example :
(i) (ii) (iii) (iv)



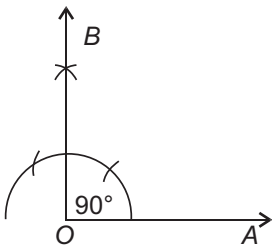
12. (i) Vertically opposite angles (ii) Adjacent angles (iii) Adjacent angles
(iv) Adjacent angles

Exercise - 57

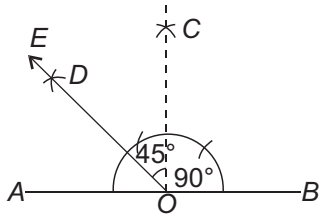
1. Construct the following angles using compass and ruler :
(i) 30° (ii) 75° (iii) 120°



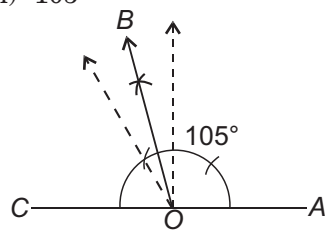
(iv) 90°



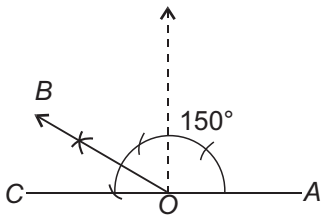
(v) 135°



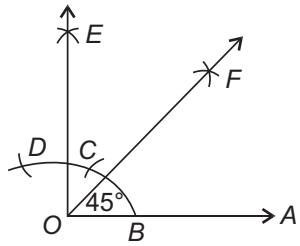
(vi) 105°



(vii) 150°

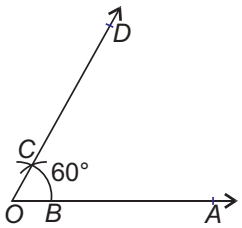


(viii) 45°

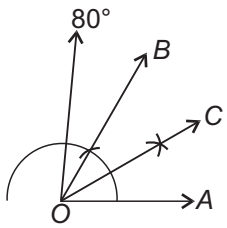


2. Use protractor to draw the angles of the following measures and bisect them with the help of compass.

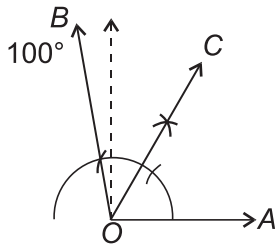
(i) 60°



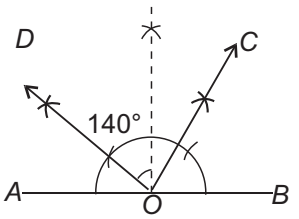
(ii) 80°



(iii) 100°



(iv) 140°



3. If angles of the following measures are bisected, what will be the measure of the bisected angles ?

(i) Measure of bisected angle = $\frac{1}{2} \times 90° = 45°$

(ii) Measure of bisected angle = $\frac{1}{2} \times 162° = 81°$

(iii) Measure of bisected angle = $\frac{1}{2} \times 78° = 39°$

(iv) Measure of bisected angle = $\frac{1}{2} \times 50° = 25°$

4. If angles of the following measures are trisected, what will be the measure of the trisected angles?

(i) Measure of trisected angle = $\frac{1}{3} \times 30° = 10°$

(ii) Measure of trisected angle = $\frac{1}{3} \times 36° = 12°$

(iii) Measure of trisected angle = $\frac{1}{3} \times 150° = 50°$

(iv) Measure of trisected angle = $\frac{1}{3} \times 99° = 33°$

Formative Assessment-3 (Lesson 17 to 24)

1. Cost of a biscuit box = ₹ 20

∴ Cost of 7 biscuit boxes = ₹ 20 × 7 = ₹ 140

2. Weight of 1 TV set = 108 kg ÷ 8 = 13·5 kg

∴ Weight of 20 TV sets = 13·5 × 20 kg = 270·0 kg

3. Change the following fractions as percent :

(a) $\frac{7}{8} = \frac{7}{8} \times 100\% = \frac{700}{8}\% = 87 \cdot 50\%$ (b) $\frac{1}{5} = \frac{1}{5} \times 100\% = 20\%$

(c) $\frac{9}{10} = \frac{9}{10} \times 100\% = \frac{900}{10}\% = 90\%$ (c) $\frac{7}{12} = \frac{7}{12} \times 100\% = \frac{700}{12}\% = 58 \cdot 33\%$

4. Total weight of mixture = 2 g + 8 g = 10 g

∴ Salt percentage in mixture $= \frac{2}{10} \times 100\% = 2 \times 10 = 20\%$

5. C.P. of 200 kg vegetables = ₹ 500

If 25 kg vegetables destroyed then weight of remianing vegetables = 200 – 25 = 175 kg

∴ S.P. of 175 kg = 4 × 175 = 700 Rs.

Here S.P. > C.P.

∴ Profit = S.P. – C.P. = ₹ [700 – 500] = ₹ 200

6. C.P. of vegetables = ₹ 400, S.P. of vegetables = ₹ 500

Here C.P. > S.P. So Profit = S.P. – C.P.

= ₹ [500 – 400] = ₹ 100

Now, Profit $= \frac{\text{Profit}}{\text{C.P.}} \times 100\% = \frac{100}{400} \times 100\% = \frac{100}{4} = 25\%$

7. P = ₹ 1,20,000; R = 8%; T = 3 years

S.I. $= \frac{\text{P} \times \text{R} \times \text{T}}{100} = \frac{120000 \times 8 \times 3}{100}$ = ₹ 28800

Amount = P + I = ₹ [120000 + 28800] = ₹ 148800

8. P = ₹ 16,000; R = 8%; T = 3 years

S.I. $= \frac{\text{P} \times \text{R} \times \text{T}}{100} = \frac{16000 \times 8 \times 3}{100}$ = ₹ 3840

9. Change the following speed in m/s :

(a) $36 \text{ km/h} = 36 \times \frac{1000}{60 \times 60} = \frac{36 \times 1000}{3600} = \frac{36 \times 10}{36} = 10 \text{ m/s}$

(b) $60 \text{ km/h} = 60 \times \frac{1000}{60 \times 60} = \frac{60 \times 1000}{3600} = \frac{600}{36} = 16 \cdot 6 \text{ m/s}$

(c) $72 \text{ km/h} = 72 \times \frac{1000}{60 \times 60} = \frac{72 \times 1000}{3600} = \frac{72 \times 10}{36} = 2 \times 10 = 20 \text{ m/s}$

10. Distance = 2 km, Time = 30 minutes $= \frac{30}{60}$ h = 0·5 h

∴ Speed $= \frac{\text{Distance}}{\text{Time}} = \frac{2 \text{ km}}{0 \cdot 5 \text{ h}} = \frac{20}{5} = 4 \text{ km/h}$

11. Speed of train = 75 km/h, Time taken = 5 h 30 min $= \left(5\text{h} + \frac{30}{60}\text{h}\right) = (5 + 0 \cdot 5) = 5 \cdot 5 \text{ hr}$

∴ Distance = Speed × Time = 75 × 5·5 km = 412·50 km

12. Write the complementary angle of each of the following angles :

(i) Complementry angles of 45° = 90 – 45° = 55°

(ii) Complementry angles of 54° = 90 – 54° = 36°

(iii) Complementry angles of 89° = 90 – 89° = 1°

(iv) Complementry angles of 72° = 90 – 72° = 18°

(v) Complementry angles of 65° = 90 – 65° = 25°

(vi) Complementry angles of $30° = 90 - 30° = 60°$

(vii) Complementry angles of $28° = 90 - 28° = 62°$

(viii) Complementry angles of $40° = 90 - 40° = 50°$

13. Convert the temperature given below in Fahrenheit Scale :

(i) 60°C

We have $°F = \frac{9}{5}°C + 32$

$= \frac{9}{5} \times 60 + 32 = 108 + 32 = 140\ °F$

(ii) 100°C

We have $°F = \frac{9}{5}°C + 32$

$= \frac{9}{5} \times 100 + 32 = 180 + 32 = 212\ °F$

(iii) 50°C

We have $°F = \frac{9}{5}°C + 32$

$= \frac{9}{5} \times 50 + 32 = 90 + 32 = 122\ °F$

(iv) 85°C

We have $°F = \frac{9}{5}°C + 32$

$= \frac{9}{5} \times 85 + 32 = 9 \times 17 + 32 = 153 + 32 = 185\ °F$

14. Convert the temperatures of the following in °C and °F :

(i) Freezing point of water in °C = 0°C

and freezing point of water in $°F = \frac{9}{5} \times 0 + 32 = 0 + 32 = 32\ °F$

(ii) Boiling point of water in °C = 100°C

and boiling point of water in $°F = \frac{9}{5} \times 100 + 32 = 9 \times 20 + 32 = 180 + 32 = 212\ °F$

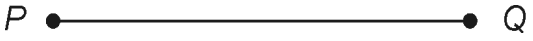
(iii) Normal body temperature of human beings in °C = 37°C

Normal body temperature of human beings in $°F = \frac{9}{5} \times 37 + 32 = \frac{333}{5} + 32 = 66 \cdot 6 + 32$

15. Define the following :

(i) A ray : A ray is a straight line which has one end-point and extends endlessly in any one direction.

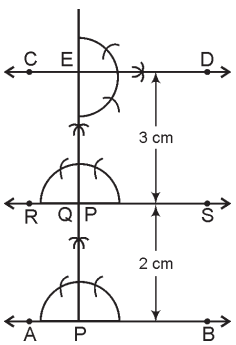
(ii) A line segment : Any part of a line is called a line segment. It has two end points.



(iii) A line : A line has no end-point. It does not have a fixed length. It can be extended to any length on both sides. The symbol of line is $\overleftrightarrow{AB}$.

(iv) A point : A point is fine dot (.) made by a pointed sharp pencil. A point is so minor that we cannot think of its length, breadth, size and shape. We have to consider its position only.

16.

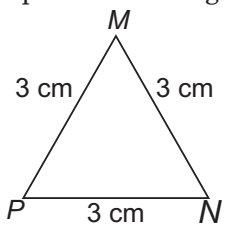


25. TRIANGLES

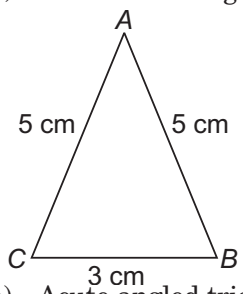
Exercise - 58

1. Different types of triangles are :

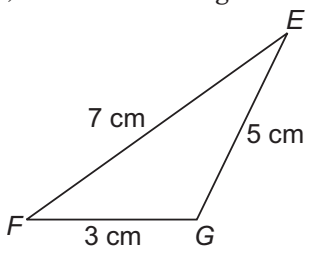
(a) Equilateral triangle



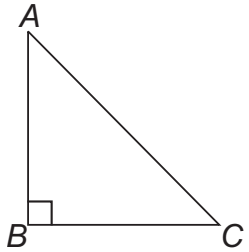
(b) Isosceles Triangle



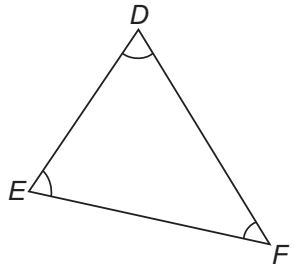
(c) Scalene Triangle



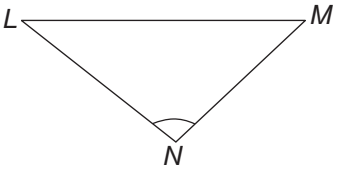
(d) Right angle triangle



(e) Acute angled triangle



(f) Obtuse angled triangle



2. Write True or false :

(i) True (ii) False (iii) False

3. The sum of three angles of a triangle is 180°.

4. Can you draw a triangle in the following cases. Write Yes of No.

(i) No (ii) Yes (iii) No (iv) Yes (v) No

5. We have $\angle XYZ = 100°$

$\therefore \quad \angle YXZ + \angle YZX = 180° - 100° = 80°$

6. We have $\angle A = \angle B = \angle C = x$

$\angle A + \angle B + \angle C = 180°$

$x + x + x = 180°; 3x = 180°; x = \frac{180°}{3} = 60°$

$\therefore \quad \angle ABC = 60° = \angle BAC = \angle BCA$

Since all angles are equal so it is equilateral triangle. Also, each angle is less than 90° so it is acute angled triangle.

7. Identify the equilateral, Isosceles and Scalene triangle out of the following :

(i) All sides are different, so it is scalene triangle.

(ii) All sides are equal, so it is an equilateral triangle.

(iii) Two sides are equal, so it is an isosceles triangle.

8. In the given figure MNO is a triangle :

(i) Vertices are M, N and O (ii) Sides are MN, NO and OM

(iii) Angles are $\angle MNO$, $\angle NOM$ and $\angle OMN$

(iv) Here, MN = MO so it is an iscosceles and acute angled triangle.

9. Name the type of the following triangles :

(i) Isosceles, acute angled triangle (ii) Scalene, obtuse angled triangle

(iii) Scalene, acute angled triangle (iv) Right angled triangle
(v) Equilateral, acute angled triangle

10. In ABC, if

(i) $\angle A = 45°, \angle B = 65°$
$\angle C = 180° - (\angle A + \angle B) = 180° - (45° + 65°) = 180° - 110° = 70°$

(ii) $\angle A = 120°, \angle B = 30°$
$\angle C = 180° - (\angle A + \angle B) = 180° - (120° + 30°) = 180° - 150° = 30°$

(iii) $\angle A = \angle C = 75°$
$\angle B = 180° - (\angle A + \angle C) = 180° - (75° + 75°) = 180° - 150° = 30°$

(iv) $\angle A = \angle B = \angle C$
$\angle A + \angle B + \angle C = 180°$; $\angle A + \angle A + \angle A = 180°$
$3\angle A = 180°$
$\angle A = \frac{180°}{3} = 60°$ Hence, $\angle A = \angle B = \angle C = 60°$

26. QUADRILATERALS

Exercise - 59

1. Only figure (c) is a Quadrilateral because it has 4 sides.

2. Fill in the blanks :
(a) Rhombus, square (b) 4, 2, 4, 4

3. In a quadrilateral ABCD :
$\angle A = 100°, \angle B = 70°, \angle C = 60°$
$\angle D = 360° - [\angle A + \angle B + \angle C] = 360° - [100° + 70° + 60°] = 360° - 230° = 130°$

4. In a quadrilateral ABCD :
$\angle A = 110°, \angle B = 110°, \angle C = 80°$
$\angle D = 360° - [\angle A + \angle B + \angle C] = 360° - [110° + 110° + 80°] = 360° - 300° = 60°$

5. In a quadrilateral ABCD :
$\angle A = \angle B = \angle C = 90°$
$\angle D = 360° - [\angle A + \angle B + \angle C] = 360° - [90° + 90° + 90°] = 360° - 270° = 90°$

6. $\angle A = 120°, \angle B = 60°$ and $\angle C = 90°$
We know that
$\angle A + \angle B + \angle C + \angle D = 360°$
$\angle D = 360° - [\angle A + \angle B + \angle C] = 360° - [120° + 60° + 90°] = 360° - 270° = 90°$

7. (a) We have $\angle A = 100°$, $\angle B = 80°$, $\angle D = 120°$, $\angle C = ?$
We know that $\angle A + \angle B + \angle C + \angle D = 360°$
$\angle C = 360° - [\angle A + \angle B + \angle D] = 360° - [100° + 80° + 120°] = 360° - 300° = 60°$

(b) We have $\angle A = 80°$, $\angle B = 100°$, $\angle D = 100°$, $\angle C = ?$
We know that $\angle A + \angle B + \angle C + \angle D = 360°$
$\angle C = 360° - [\angle A + \angle B + \angle D] = 360° - [80° + 100° + 100°] = 360° - 280° = 80°$

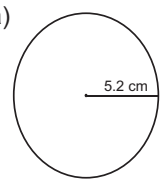
(c) We have $\angle A = 70°$, $\angle B = 60°$, $\angle C = 90°$, $\angle D = ?$
We know that $\angle A + \angle B + \angle C + \angle D = 360°$
$\angle D = 360° - [\angle A + \angle B + \angle C] = 360° - [70° + 60° + 90°] = 360° - 220° = 140°$

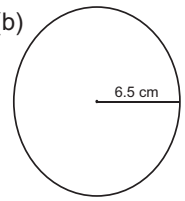
(d) We have $\angle A = 90°$, $\angle B = 90°$, $\angle D = 120°$, $\angle C = ?$
We know that $\angle A + \angle B + \angle C + \angle D = 360°$
$\angle C = 360° - [\angle A + \angle B + \angle D] = 360° - [90° + 90° + 120°] = 360° - 300° = 60°$

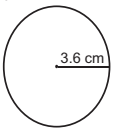
27. CIRCLES

Exercise - 60

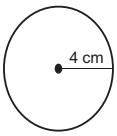
1. Using compass, draw circles of the following radius :

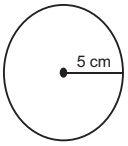
(a) 

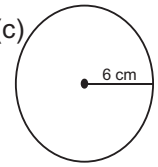
(b) 

(c) 

2. With the same point O as the centre draw three circle of radius, 4 cm, 5 cm and 6 cm.

(a) 

(b) 

(c) 

3. Find the radius of the circle whose diameter is :

(a) 20 cm

$\therefore$ radius $= \frac{1}{2} \times$ diameter

$= \frac{1}{2} \times 20 \text{ cm} = 10 \text{ cm}$

(b) 30·5 cm

$\therefore$ radius $= \frac{1}{2} \times$ diameter

$= \frac{1}{2} \times 30 \cdot 5 = 15 \cdot 25 \text{ cm}$

(c) 20·70 cm

$\therefore$ radius $= \frac{1}{2} \times$ diameter

$= \frac{1}{2} \times 20 \cdot 70 \text{ cm} = 10 \cdot 35 \text{ cm}$

(d) 40 cm

$\therefore$ radius $= \frac{1}{2} \times$ diameter

$= \frac{1}{2} \times 40 = 20 \text{ cm}$

4. Find the diameter of the circle whose radius is :

(a) 4 cm

$\therefore$ diameter = 2 × radius

$= 2 \times 4 = 8 \text{ cm}$

(b) 6·7 cm

$\therefore$ diameter = 2 × radius

$= 2 \times 6 \cdot 7 = 13 \cdot 4 \text{ cm}$

(c) 3·9 cm

$\therefore$ diameter = 2 × radius

$= 2 \times 3 \cdot 9 = 7 \cdot 8 \text{ cm}$

(d) 8·8 cm

$\therefore$ diameter = 2 × radius

$= 2 \times 8 \cdot 8 = 17 \cdot 6 \text{ cm}$

5. Find the circumference of the circle whose diameter is :

(a) 42 cm

$\therefore$ circumference $= \pi \times$ diameter

$= \frac{22}{7} \times 42 = 22 \times 6 = 132 \text{ cm}$

(b) 21 cm

$\therefore$ circumference $= \pi \times$ diameter

$= \frac{22}{7} \times 21 = 22 \times 3 = 66 \text{ cm}$

(c) 14 cm

$\therefore$ circumference $= \pi \times$ diameter

$= \frac{22}{7} \times 14 = 22 \times 2 = 44 \text{ cm}$

(d) 28 cm

$\therefore$ circumference $= \pi \times$ diameter

$= \frac{22}{7} \times 28 = 22 \times 4 = 88 \text{ cm}$

6. Find the diameter of the circle whose circumference is :

(a) 22 cm

Circumference = 22 cm

$\therefore$ Diameter $= \frac{\text{Circumference}}{\pi}$

$= \frac{22}{\frac{22}{7}} = \frac{22 \times 7}{22} = 7$

(b) 44 cm

Circumference = 44 cm

$\therefore$ Diameter $= \frac{\text{Circumference}}{\pi}$

$= \frac{44}{\frac{22}{7}} = \frac{44 \times 7}{22} = 14$

(c) 66 cm
Circumference = 66 cm
$\therefore$ Diameter = $\frac{\text{Circumference}}{\pi}$
$= \frac{66}{\frac{22}{7}} = \frac{66\times7}{22} = 21$

(d) 88 cm
Circumference = 88 cm
$\therefore$ Diameter = $\frac{\text{Circumference}}{\pi}$
$= \frac{88}{\frac{22}{7}} = \frac{88\times7}{22} = 4\times7 = 28$

7. Fill in the blanks :
(a) arc (b) diameter (c) centre (d) half (e) π

28. AREA

Exercise - 61

1. Find the area of each of the following shaded regions in s.q. cm :
Area of figure A = 5 sq.cm [by counting no. of squares]
Area of figure B = 4·5 sq.cm [by counting no. fo squares]
Area of figure C = 12 sq.cm [by counting no. fo squares]
Area of figure D = 9 sq.cm [by counting no. fo squares]

2. Calculate the area of the following figures :
(a) Here, Length of recntangle = 5 cm, Breadth = 2 cm
$\therefore$ Area of rectangle = length × breadth = 5 × 2 = 10 sq.cm.
(b) Here, Side of square = 4 cm
$\therefore$ Area of square = side × side = 4 × 4 = 16 sq.cm.
(c) Area of ABCD rectangle = length × breadh = 5 × 1 sq. cm = 5 sq. cm
Also, Area of PQRS rectangle = length × breadth = 3 × 1 = 3 sq.cm.
$\therefore$ Total area of figure = (5 + 3) = 8 sq.cm.
(d) Area of ABGH rectangle = length × breadth = 4 × 1 = 4 sq.cm.
Area of BCFG rectangle = = length × breadth = 6 × 1 = 6 sq.cm.
and Area of CDEF rectangle = = length × breadth = 6 × 1 = 6 sq.cm.
$\therefore$ Total area of figure = (4 + 6 + 6) = 16 sq.cm.

3. Calculate the area of a rectangle which is :
(a) Length of rectangle = 10 cm, Breadth of rectangle = 7 cm
$\therefore$ Area = = length × breadth = 10 × 7 = 70 sq.cm.
(b) Length of rectangle = 15 cm, Breadth of rectangle = 5 cm
$\therefore$ Area = = length × breadth = 15 × 5 = 75 sq.cm.
(c) Length of rectangle = 6 cm, Breadth of rectangle = 4 cm
$\therefore$ Area = = length × breadth = 6 × 4 = 24 sq.cm.

4. Calculate the area of a square whose one side measures :
(a) 6 cm
Side of square = 6 cm
$\therefore$ Area of square = side × side
= 6 × 6 = 36 sq.cm.
(b) 3 cm
Side of square = 3 cm
$\therefore$ Area of square = side × side
= 3 × 3 = 9 sq.cm
(c) 15 m
Side of square = 15 cm
$\therefore$ Area of square = side × side
= 15 × 15 = 225 sq.cm.

5. Length of notebook = 20 cm, Breadth of notebook = 18 cm
$\therefore$ Area of cover = length × breadth = 20 × 18 = 360 sq.cm.

6. Length of table = 2 m, Breadth of table = 1 m
$\therefore$ Area of table top = = length × breadth = 2 × 1 = 2 sq.m

7. Length of city = 10 km, Breadth of city = 7 km
∴ Area of city = = length × breadth = 10 × 7 = 70 sq.km.

8. Length of flower bed = 5 m, Breadth of flower bed = 3 m
∴ Area of flowerbed = = length × breadth = 5 × 3 = 15 sq.m.

9. Length of garden = 20, Breadth of garden = 15 m
∴ Area of garden = = length × breadth = 20 × 15 = 300 sq.m.

10. Side of glass sheet = 35 cm
∴ Area of glass sheet = side × side = 35 × 35 = 1225 sq.cm

11. Side of square lawn = 6 m
∴ Area of square lawn = side × side = 6 × 6 = 36 sq.m.

12. Side square field = 23 m
∴ Area of square field = side × side = 23 × 23 = 529 sq.m.

13. Length of rectangle = 70 cm, Breadth of rectangle = 50 cm
∴ Area of rectangle = length × breadth = 70 × 50 = 3500 sq.cm.
Also, side of square = 65 cm
∴ Area of square = side × side = 65 × 65 = 4225 sq.cm
Now, difference between area of rectangle and area of square = (4225 – 3500) = 725 sq.cm.

14. Perimeter of a square = 8 m
perimeter of square = 4 × side
8 = 4 × side
$\frac{8}{4}$ = side = 2 cm
Now, Area of square plot = side × side = 2 × 2 = 4 sq.cm

29. VOLUME

Exercise - 62

1. Find the volume of the cube whose side is :

(i) 3 cm
Side of cube = 3 cm
∴ Volume of cube = side × side × side
= 3 × 3 × 3 = 27 cu.cm

(ii) 0·25 cm
Side of cube = 0·25 cm
∴ Volume of cube = side × side × side
= 0·25 × 0·25 × 0·25 = 0·015625 cu.cm

(iii) 10 cm
Side of cube = 10 cm
∴ Volume of cube = side × side × side
= 10 × 10 × 10 = 1000 cu.cm

(iv) 2·5 m
Side of cube = 2·5 cm
∴ Volume of cube = side × side × side
= 2·5 × 2·5 × 2·5 cu.cm = 15·625 cu.cm

2. Find the volume of the cuboid whose dimensions are :

(i) Length = 12 cm, Breadth = 8 cm and Height = 6 cm
∴ Volume of cuboid = $l \times b \times h$ = 12 × 8 × 6 = 576 cu.cm.

(ii) Length = 8 cm, Breadth = 4 cm and Height = 3 cm
∴ Volume of cuboid = $l \times b \times h$ = 8 × 4 × 3 = 96 cucm.

(iii) Length = 2·5 cm, Breadth = 1·5 cm and Height = 1 cm
∴ Volume of cuboid = $l \times b \times h$ = 2·5 × 1·5 × 1 = 3·75 cu.cm.

(iv) Length = 5 cm, Breadth = 3 cm and Height = 2·75 cm
∴ Volume of cuboid = $l \times b \times h$ = 5 × 3 × 2·75 = 41·25 cu.cm.

3. Room measures = 4·5 m × 3 m × 2· 5 m
∴ Volume of air = 4·5 × 3 × 2·5 = 33·75 cu.m.

4. Volume of cuboid = 1500 cm^3
Length of cuboid = 30 cm
Breadth of cuboid = 5 cm
$\therefore$ Breadth of cuboid = $\frac{\text{Volume of cuboid}}{\text{Length} \times \text{breadth}} = \frac{1500}{30 \times 5} = \frac{1500}{150} = 10$

5. Measure of cuboid = 30 m × 24 m × 18 m
$\therefore$ Volume of cuboid = 30 × 24 × 18 = 12960
And, Edge of cube = 6 m
$\therefore$ Volume of cuboid = edge × edge × edge = 6 × 6 × 6 = 216 cu.m.
Hence, No. of cubes = $\frac{\text{Volume of cuboid}}{\text{Volume of cube}} = \frac{12960}{216} = 60$

6. Measure of tank = 3 × 2·5 × 2
$\therefore$ Volume of water = 3 × 2·5 × 2 = 15·0 cu cm.

7. Measure of wall = 10 m × 5 m × 0·4 m.
$\therefore$ Volume of wall = 10 × 5 × 0·4 = 20·0 cu.m = 20 × 100 × 100 × 100 cu.cm
= 20000000 cucm
Measure of brick = 20 × 10 × 8 cm
$\therefore$ Volume of brick = 20 × 10 × 8 = 1600 cu cm
Hence, No. of bricks = = $\frac{20000000}{1600} = \frac{200000}{16} = 12500$ bricks

8. Length of packet = 10 cm, Breadth of packet = 6 cm
Height of packet = 4 cm
$\therefore$ Volume of packet = l × b × h = 10 × 6 × 4 = 240 cu.cm.

9. Edge of tin box = 8 cm
$\therefore$ Volume of tin box = edge × edge × edge = 8 × 8 × 8 = 512 cu.cm

10. Dimension of cuboid = 15 cm × 12 cm × 10 cm
$\therefore$ Volume of cuboid = 15 × 12 × 10 = 1800
Now, Given thant
Volume of cube = 3 × volume of cuboid = 3 × 1800 = 5400 cu.cm.

11. Edge of cube = 10 m
$\therefore$ Volume of cube = edge × edge × edge = 10 × 10 × 10 = 1000 cu.cm
Now, given that
Volume of cuboid = 5 × volume of cube = 5 × 1000 = 5000 cum
Hence, volume of cuboid = 5000 m^3

30. PATTERN

Exercise - 63

1. Make a grid diagram for square numbers. One has been done for you.
Ans. Do yourself

2. Complete the given triangle by inserting the missing numbers :

1					
2	3				
4	5	6			
7	8	9	10		
11	12	13	14	15	
16	17	18	19	20	21

31 BAR GRAPH

Exercise - 64

1. The following bar graph shows the speed in km per hour of different vehicles (means of transport) :

(a) Train has maximum speed among all. (b) Cycle has mimimum speed.

(c) The speed of bus is 25 km/her. (d) 10 Km/hr is the speed of scooter.

2. The following bar graph shows the runs scored in six overs bowled by a spinner in a cricket match :

(a) 8 runs scored in the second over. (b) Only over 3 in which no. runs were scored.

(c) Total no. of runs scored in six overs = 5 + 8 + 0 + 4 + 6 + 1 = 24 runs

(d) Average runs scored in six overs = $\frac{\text{Total no. of runs}}{\text{No. of overs}} = \frac{24}{6} = 4$

3. The following table shows the number of students present on week days of a particular week :

(a) 35 students were present on Monday.

(b) The no. of students was maximum on Wednesday.

(c) 30 students were present on Tuesday.

(d) On thursday the no. of students was only 20.

(e) Average no. of students during 5 days

Average = $\frac{\text{Total no. of students}}{\text{No. of days}} = \frac{35+30+40+20+35}{5} = \frac{160}{5} = 32$

4. Given below is a bar graph showing the marks obtained by Tarun in 5 subjects in an annual examination :

(a) Tarun gets the lowest marks in S.S.T. (b) Tarun gets the highest marks in Maths.

(c) He gets 50 marks in English.

(d) In Hindi, S.S.T and Science Tarun get less than 50 marks.

5. The following bar graph shows the years and number of people who are getting their life insurance done :

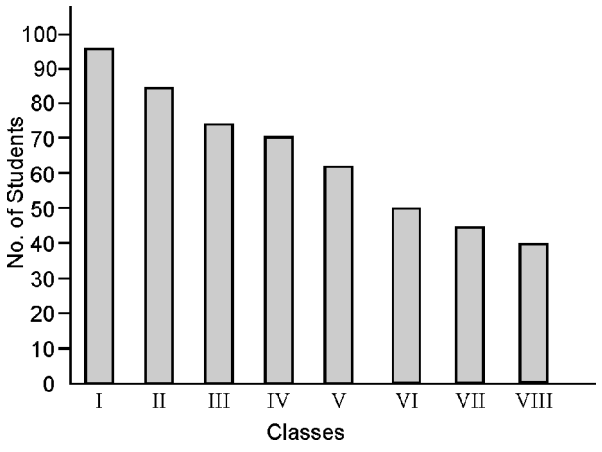
(a) In 1997-98 maximum no. of people got their life insurance done.

(b) In 1994-95 minimum no. of people got their life insurance done.

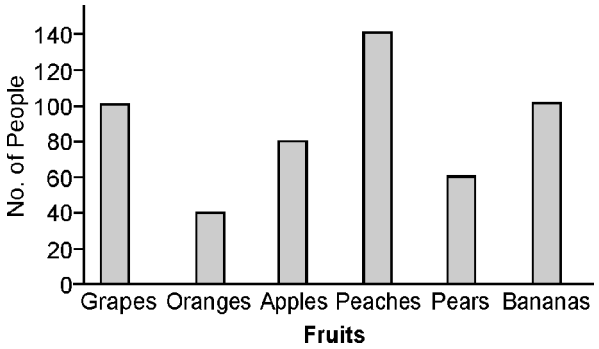
(c) In 1996-97 300 lakh people got insured.

(d) Total no. of people = (150 + 50 + 200 + 300 + 400) Lakh = 1100 Lakh

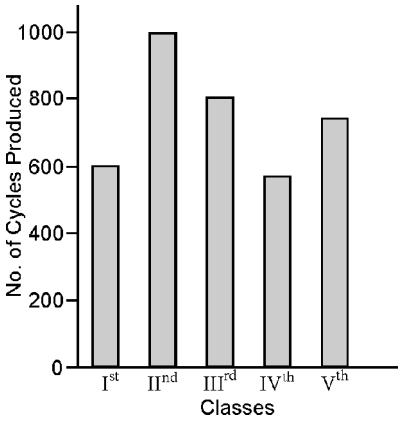
6. Represent the data by a bar graph showing the strength of classes I to VIII on a particular day of a school :



7. A super market carried out a survey to find out which kind of fruit people liked the most. Show the data on a bar graph :



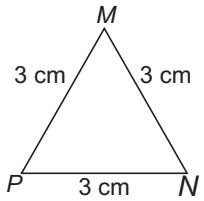
8. Represent the data by a bar graph showing the number of cycles produced in a factory during five weeks :



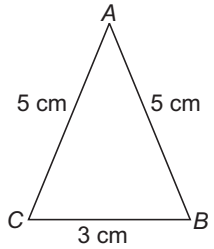
Formative Assessment-4 (Lesson 25 to 31)

1. Different types of triangles are :

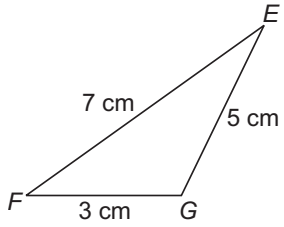
(a) Equilateral triangle



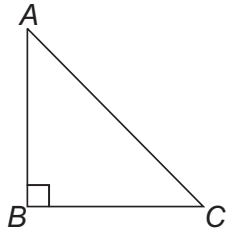
(b) Isosceles Triangle



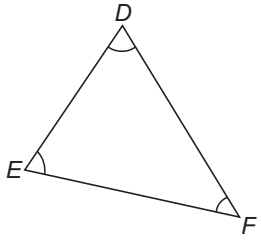
(c) Scalene Triangle



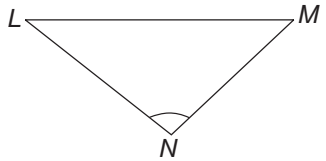
(d) Right angle triangle



(e) Acute angled triangle



(f) Obtuse angled triangle



2. Write True or false :

(i) True (ii) False (iii) False

3. Fill in the blanks :

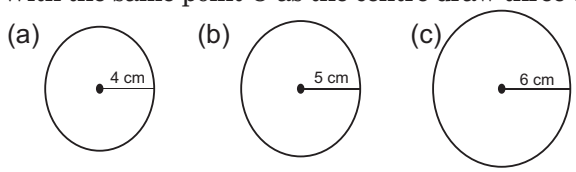
(a) Rhombus, square (b) 4, 2, 4, 4

4. In a quadrilateral ABCD :

$\angle A = 100°, \angle B = 70°, \angle C = 60°$

$\angle D = 360° - [\angle A + \angle B + \angle C] = 360° - [100° + 70° + 60°] = 360° - 230° = 130°$

5. With the same point O as the centre draw three circle of radius, 4 cm, 5 cm and 6 cm.



6. Find the circumference of the circle whose diameter is :

(a) 42 cm

$\therefore$ circumference = $\pi \times$ diameter

$= \frac{22}{7} \times 42 = 22 \times 6 = 132$ cm

(b) 21 cm

$\therefore$ circumference = $\pi \times$ diameter

$= \frac{22}{7} \times 21 = 22 \times 3 = 66$ cm

(c) 14 cm

$\therefore$ circumference = $\pi \times$ diameter

$= \frac{22}{7} \times 14 = 22 \times 2 = 44$ cm

(d) 28 cm

$\therefore$ circumference = $\pi \times$ diameter

$= \frac{22}{7} \times 28 = 22 \times 4 = 88$ cm

7. Calculate the area of a square whose one side measures :

(a) 6 cm

Side of square = 6 cm

$\therefore$ Area of square = side × side

= 6 × 6 = 36 sq.cm.

(b) 3 cm

Side of square = 3 cm

$\therefore$ Area of square = side × side

= 3 × 3 = 9 sq.cm

(c) 15 m

Side of square = 15 cm

$\therefore$ Area of square = side × side

= 15 × 15 = 225 sq.cm.

8. A city is 10 km long and 7 km wide. Calculate its area.

Length of city = 10 km, Breadth of city = 7 km

$\therefore$ Area of city = = length × breadth = 10 × 7 = 70 sq.km.

9. Find the volume of the cuboid whose dimensions are :

(i) Length = 12 cm, Breadth = 8 cm and Height = 6 cm

$\therefore$ Volume of cuboid = $l \times b \times h = 12 \times 8 \times 6 = 576$ cu.cm.

(ii) Length = 8 cm, Breadth = 4 cm and Height = 3 cm

$\therefore$ Volume of cuboid = $l \times b \times h = 8 \times 4 \times 3 = 96$ cucm.

(iii) Length = 2·5 cm, Breadth = 1·5 cm and Height = 1 cm

$\therefore$ Volume of cuboid = $l \times b \times h = 2{\cdot}5 \times 1{\cdot}5 \times 1 = 3{\cdot}75$ cu.cm.

(iv) Length = 5 cm, Breadth = 3 cm and Height = 2·75 cm

$\therefore$ Volume of cuboid = $l \times b \times h = 5 \times 3 \times 2{\cdot}75 = 41{\cdot}25$ cu.cm.

10. Measure of waal = 10 m × 5 m × 0·4 m.

$\therefore$ Volume of wall = 10 × 5 × 0·4 = 20·0 cu.m = 20 × 100 × 100 × 100 cu.cm

= 20000000 cucm

Measure of brick = 20 × 10 × 8 cm

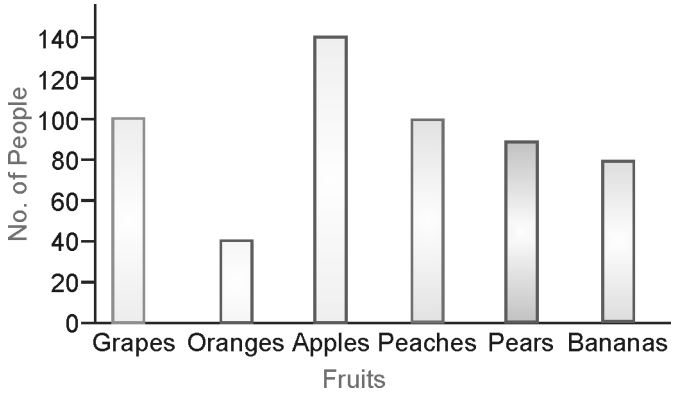
$\therefore$ Volume of brick = 20 × 10 × 8 = 1600 cu cm

Hence, No. of bricks = = $\frac{20000000}{1600} = \frac{200000}{16} = 12500$ bricks

11. We have $\angle XYZ = 100°$

$\therefore \quad \angle YXZ + \angle YZX = 180° - 100° = 80°$

12. A super market carried out a survey to find out which kind of fruit people liked the most. Show the data on a bar graph :



13. Perimeter of a square = 8 m

perimeter of square = 4 × side

8 = 4 × side

$\frac{8}{4}$ = side = 2 cm

Now, Area of square plot = side × side = 2 × 2 = 4 sq.cm

14. Edge of cube = 10 m

$\therefore$ Volume of cube = edge × edge × edge = 10 × 10 × 10 = 1000 cu.cm

Now, given that

Volume of cuboid = 5 × volume of cube = 5 × 1000 = 5000 cum

Hence, volume of cuboid = 5000 m^3

Summative Assessment-2 (Lesson 15 to 31)

1. Change into Simple fraction :

(a) $15\% = 15 \times \frac{1}{100} = \frac{15}{100} = \frac{3}{20}$

(b) $20\% = 20 \times \frac{1}{100} = \frac{20}{100} = \frac{1}{5}$

(c) $60\% = 60 \times \frac{1}{100} = \frac{60}{100} = \frac{3}{5}$

(d) $10\% = 10 \times \frac{1}{100} = \frac{10}{100} = \frac{1}{10}$

(e) $25\% = 25 \times \frac{1}{100} = \frac{1}{4}$

2. (a) $35\% = 35 \times \frac{1}{100} = \frac{35}{100} = \frac{7}{20}$

(b) $45\% = 45 \times \frac{1}{100} = \frac{45}{100} = \frac{9}{20}$

(c) $125\% = 125 \times \frac{1}{100} = \frac{125}{100} = \frac{5}{4}$

(d) $250\% = 250 \times \frac{1}{100} = \frac{250}{100} = \frac{50}{20} = \frac{5}{2}$

3. Cost of 15 things = ₹ 240

$\therefore$ Cost of one thing = ₹ 240 ÷ 15 = ₹ 16.

4. The fare of 10 men = ₹ 514

The fare of 1 man = ₹ 514 ÷ 10 = ₹ 51·4

$\therefore$ The fare of 17 men = ₹ 51·4 × 17 = ₹ 873·8

5. Shashank gave 15% of his income in construction office. If his income is ₹ 25000 then find the amount given.

6. C.P. of motor bike = ₹ 1200

Expense on repairing = ₹ 3450
Total C.P. = ₹ [1200 + 3450] = ₹ 4650
Profit = ₹ 1200
S.P. = C.P. + Profit = ₹ [4650 + 1200] = ₹ 5850

7. C.P. of coconuts = ₹ 1200, S.P. of coconuts = ₹ 1080
Here C.P. > S.P. So Loss = C.P. – S.P. = ₹ [1200 – 1080] = ₹ 120

$$\text{Loss \%} = \frac{\text{Loss}}{\text{C.P.}} \times 100\% = \frac{120}{1200} \times 100\% = \frac{120}{12} = 10\%$$

10. Make Bill for the following :

1. **Rajsi Prakashan**

Bill No. 654 Delhi Road, Agra
Phone — 649963

Name and Address : ABC Book Store, 94, Sahani Gate, Agra **Date :** 06/05/2014

S. No.	Things Name	Quantity/Number	Rate per unit	Amount (₹)
1.	Knowledge of script	100	₹ 25·00	2500·00
2.	Learning Math	200	₹ 24·00	4800·00
3.	Knowledge of language	150	₹ 28·00	4200·00
4.	Moral Science	100	₹ 20·00	2000·00
5.	English Reader	200	₹ 55·00	11000·00
			Total	₹ 24500·00

Sign Rajsi Prakashan

11. Length of train = 120 m, Length of plateform = 200 m

$$\text{Speed of train} = 45 \text{ km/h} = 45 \times \frac{1000 \text{ m}}{60 \times 60 \text{ sec}} = \frac{450}{36} \text{ m/s}$$

$\therefore$ Total distance = (120 + 200) m = 320 m

12. Maximum temperature = 140°F

$$\text{Minimum temperature in °C} = \frac{5}{9} \times (140 - 32) = \frac{5}{9} \times 108 = 5 \times 12 = 60 \text{ °C}$$

Minimum temperature = 77 °F

$$\text{Minimum temperature in °C} = \frac{5}{9} \times (77 - 32) = \frac{5}{9} \times 45 = 5 \times 5 = 25 \text{ °C}$$

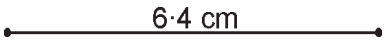
$\therefore$ Required difference of temperatures = (60 – 25)°C = 35°C

13. Write the following in symbols :

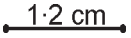
(i) $\overleftrightarrow{AB}$ (ii) $\overline{PQ}$ (iii) $\overrightarrow{EF}$

14. If AB = 2.6 cm and CD = 3.8 cm, construct line segment whose length is equal to :

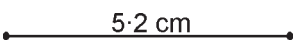
(i) AB + CD = (2·6 + 3·8) cm = 6·4



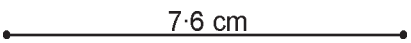
(ii) CD – AB = (3·8 – 2·6) = 1·2 cm



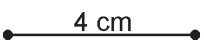
(iii) 2AB = 2 × 2·6 cm = 5·2 cm



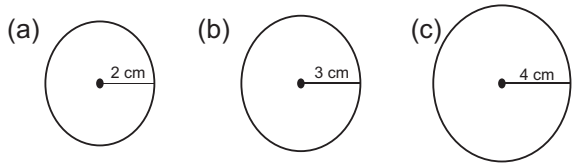
(iv) 2CD = 2 × 3·8 cm = 7·6 cm



(v) 3 AB – CD = (3 × 2·6 – 3·8) cm = = (7·8 – 3·8) cm = 4·0 cm



15. Draw 3 concentric circles of radius 2 cm., 3cm and 4 cm.



16. Choose the pairs of complementary angles and supplementary angles :

(i) 40°, 50° = [40 + 50 = 90] Complementary Angles
(ii) 70°, 110° = [70 + 110 = 180°] Supplementary Angles
(iii) 75°, 105° = [75 + 105 = 180°] Supplementary Angles
(iv) 76°, 14° = [76 + 14 = 90°] Complementary Angles
(v) 20°, 70° = [20 + 70 = 90°] Complementary Angles
(vi) 125°, 55° = [125 + 55 = 180°] Supplementary Angles
(vii) 50°, 130° = [50 + 130 = 180°] Supplementary Angles
(viii) 30°, 60° = [30 + 60 = 90°] Complementary Angles

17. In ABC, if

(i) $\angle A = 45°, \angle B = 65°$
$\angle C = 180° - (\angle A + \angle B) = 180° - (45° + 65°) = 180° - 110° = 70°$

(ii) $\angle A = 120°, \angle B = 30°$
$\angle C = 180° - (\angle A + \angle B) = 180° - (120° + 30°) = 180° - 150° = 30°$

(iii) $\angle A = \angle C = 75°$
$\angle B = 180° - (\angle A + \angle C) = 180° - (75° + 75°) = 180° - 150° = 30°$

(iv) $\angle A = \angle B = \angle C$
$\angle A + \angle B + \angle C = 180°$; $\angle A + \angle A + \angle A = 180°$; $3\angle A = 180°$
$\angle A = \frac{180°}{3} = 60°$ Hence, $\angle A = \angle B = \angle C = 60°$

18. In a quadrilateral ABCD :
$\angle A = 100°, \angle B = 70°, \angle C = 60°$
$\angle D = 360° - [\angle A + \angle B + \angle C] = 360° - [100° + 70° + 60°] = 360° - 230° = 130°$

19. Side of square lawn = 6 m
$\therefore$ Area of square lawn = side × side = 6 × 6 = 36 sq.m.

20. Fill in the blanks :
(a) arc (b) diameter (c) centre (d) half (e) π

21. Dimension of cuboid = 15 cm × 12 cm × 10 cm
$\therefore$ Volume of cuboid = 15 × 12 × 10 = 1800; Now, Given thant
Volume of cube = 3 × volume of cuboid = 3 × 1800 = 5400 cu.cm.

22. Represent the data by a bar graph showing the number of cycles produced in a factory during five weeks :