
Data Handling

- 1) The table given below shows the marks scored by 80 students (out of 50) in a test.

Draw a histogram to represent this data.

Marks	No. of students
0-10	3
10-20	14
20-30	24
30-40	27
40-50	12

- 2) The following table shows the height of some students. Show their information in the form of histogram.

Height in cm	125-130	130-135	135-140	140-145	145-150	150-155
No. of students	4	8	18	22	12	8

- 3) The following shows the pulse rate of grouping 50 people represent it on a histogram.

Pulse rate beat	60-65	65-70	70-75	75-80	80-85
No. of people	4	12	20	10	4

- 4) Plot the following points on a Cartesian plane.

A(2,2) ; B(6,6) ; C(-3,0) ; D(0,-4) ; E(-3,-9) ; F(-7,2) ; G(8,-3) ; H(0,0)

- 5) On which axis will the following points lie?

A(0,6) ; B(0,8) ; C(3,0) ; D(5,0) ; E(0,-12) ; F(-9,0)

Construction of Quadrilaterals

- 1) Construct a quadrilateral ABCD where AB=7.2cm, BC=6.5cm, CD=5.9cm, AD=6.1cm, and AC=8.4cm.
- 2) Construct a quadrilateral HIGH where HI=5.4cm, IG=2.6cm, GH=4cm, HG=6.7cm and IH=5cm.

- 3) Construct a quadrilateral HOPE where $HO=6\text{cm}$, $OP=5.5\text{cm}$, $PE=4.9\text{cm}$, $HE=6.6\text{cm}$ and $\angle A=120^\circ$.
- 4) Construct a quadrilateral FINE where $FI=3.8\text{cm}$, $IN=3.4\text{cm}$, $NE=4.2\text{cm}$ and $\angle I=75^\circ$
- 5) Construct a quadrilateral MNOP where $MN=3.8\text{cm}$, $NO=5.6\text{cm}$, $OP=5.9\text{cm}$, $\angle N=105^\circ$ and $\angle O=60^\circ$.
- 6) Construct a quadrilateral ABCD where $AB=4.2\text{cm}$, $BC=3.7\text{cm}$, $CD=4.9\text{cm}$, $\angle B=35^\circ$ and $\angle C=145^\circ$.
- 7) Construct a quadrilateral MNOP where $MN=4.8\text{cm}$, $NO=5.2\text{cm}$, $OP=6\text{cm}$, $\angle O=120^\circ$ and $\angle P=65^\circ$.
- 8) Construct a quadrilateral ABCD where $AB=5.2\text{cm}$, $BC=6\text{cm}$, $\angle A=120^\circ$, $\angle B=105^\circ$ and $\angle C=75^\circ$.
- 9) Construct a parallelogram ABCD with sides 6cm and 4cm and angle 75° .
- 10) Construct a parallelogram with sides 5.6 and 7.1cm and one of the diagonal is 8.4cm .
- 11) Construct a rhombus PQRS with sides 5.5cm and a diagonal 7.8cm .
- 12) Construct a square MNOP where the diagonals are 8 cm ,
- 13) Construct a square with sides 5.8cm .
- 14) Construct a rectangle with sides 5.2cm and 4.8cm .
- 15) Construct a rectangle with a diagonal 5.4cm and the angle between the diagonals is 75° .

Direct and Inverse Variations

- 1) The cost of 18 notebooks is Rs 423. Find the cost of 20 notebooks.
- 2) 24 oranges can be packed in 4 cartons. How many oranges can be packed in 12 cartons?
- 3) Check whether the given quantities are in proportion or not:
a) 11, 22, 17 and 36 b) 12, 24, 36 and 48
- 4) Two quantities x and y vary directly. Complete the table.

x	6	8				18		24
y	12	16	18	24	32		40	

- 5) If 18 books cost RS 1170 how much will 25 books cost?
- 6) A car travels 286 km on 26 liters of petrol. How far will it travel on 36 liters?
- 7) A map is drawn to a scale of $1\text{cm}: 1000\text{km}$. If the distance on the map between 2 cities is 5cm . What is the actual distance between them?

8) The S.I on a certain sum is RS 300 for 2yrs.Find the S.I on the same sum for 6yrs at the same rate.

9) Check whether x and y vary inversely or not.

x	2	12	60	4	5	7.5	3
y	30	5	1	15	12	8	20

x	7	4	3	5	21	6	9
y	6	8	14	16	2	7	5

10) Complete the table if x and y vary inversely.

x	3	6		5	1.5	10
y	10	5	2			

11) A family of 16 had enough food to last them for 20 days. If 4 guests arrived suddenly, for how long will the amount of food last? (16 days)

12) 26 men can do a piece of work in 18 days. If the work is to be completed in 13 days, how many more men need to be hired? ($36-26=10$)

13) At the speed of 18km/hr a cyclist covers a distance in 190 minutes. At what speed can he cover the same distance in 3hrs. (19km/hr)

14) If 30 men can do a piece of work in 15 days , in how many days will 25 men do it?(18 days)

15) A car with the speed of 60km/hr completes a journey in 3hrs. If the journey can be completed in 4 hrs, what can be the speed of the car? (48km/hr)

16) Raheema completes a certain work in 5 days and Fouzia completes the same in 7 days. If they both work together, how long will they take to complete the same work? ($2\frac{11}{12}$ days)

17) Sahrish and Shaistha together can weave a carpet in 4 days. If Shaistha works alone she can weave the carpet in 6days. How long will Sahr take to weave the carpet if she works alone? (12 days)

18) If Sham Ram and Tom , work together they can mow a lawn in 4hrs.If Sham work by himself he takes 10hrs and Ram working by himself takes 12hrs . How long will Tom take to mow the same lawn, if he works by himself?

19) A tap fills a tank in 3hrs and another tap can fill it in 6hrs. If both taps are opened together how long will it take for the tank to be filled? (2hrs)

20) A tap fill a tank in 5hrs and the outlet pipe empties it in 6hrs. When the tap was opened the outlet was not blocked so the water was also flowing out. How long will it take for the tank to be completely filled? (30hrs)

21) Express

a) 36km/hr to m/sec

b) 40m/hr to km/hr

c) 90km/hr to m/sec

d) 20m/sec to km/hr

22) A car travels 54km in 45 minutes. Express its speed in m/sec.

23) A car is traveling at a speed of 55km/hr. How far will it travel in 2 hrs and 12 minutes.

24) Mina cycles to her school 14 km away and takes 56 minutes to reach.

Find her speed

25) A bus leaves from Chennai and reaches Madurai which is 440 km away in 6hrs 30 minutes. Find its speed.

Compound Interest

26) Find simple interest for RS 3000 and rate 5% for 2 yrs.

27) Find the compound interest and amount for the following:

a) $P = \text{Rs}200,000$ $R = 8\%$ $T = 3\text{yrs}$

b) $P = \text{Rs}18000$ $R = 4\%$ $T = 2\text{yrs}$

c) $P = \text{Rs}8000$ $R = 20$ paise per rupee per annum $n = 4\text{yrs}$

d) $P = \text{Rs}2000$ $R = 10$ paise per rupee per annum $n = 2\text{yrs}$

28) Find the difference between SI and CI on Rs 10,000 for 2yrs at the rate of 5% p.a.

(1000, 10.25)

29) In how much time will RS 4000 amount to RS 5200 with SI at the rate of 10% with the same time period and rate, find the CI on the same principal. (1324)

30) Find the SI and CI on RS70000 for 3yrs at the rate of 10%. (21000)

31) What sum of money will amount to RS 12100 in 2yrs time at the rate of 10% p.a.

(10,000)

32) Find CI on RS 12000 for 2yrs at the rate of 5% compounded annually. (13230, 1230)

Multiplication and Division of Algebra Expression

33) Find the HCF of the following:

a) $-50a^2b^2c^2$; $5a^2b$; $20abc^2$

b) $10m^3n^2$; $-5m^2n^2$; $20m^2n$

c) $28g^3h^2$; $-7g^3$; $14g^2h$

d) $19abc^2$; $95a^2$; $57abc^2$

34) Factorize

a) $24p^3q^2 - 18p^2q$

b) $26m^4n^3 + 39m^3n^2$

c) $x^2 - 4x + 3xy$

d) $12x^3y - 16y^2 + 8x^2y$

e) $a^2b + bd + ab^2 + ad$

f) $m^2 + 3mn - 15n - 5m$

g) $2y^2 + 3x + xy + 6y$

h) $81m^2 - 64n^2$

i) $25^2 - 1$

j) $b^2 - 49$

k) $x^2 + 4xy + 4y^2$

l) $4x^2 + 12xy + 9y^2$

m) $a^2 - 36a + 99$

n) $x^2+12x+36$

o) $25x^2-30xy+9y^2$

p) a^2-25

35) Find the quotient and remainder

a) $a^2+79+12 / a+b$

b) $m^2-m+42 / m+6$

c) $-24x^3-31x^2+71x-21 / 3-8x$

d) x^5-9x / x^2-3

e) $a^5+a^4+a^3+a^2+a+1 / a^3+1$

Understanding Quadrilaterals

- 1) The sum of the angles of a polygon with n – sides is _____.
- 2) The external angle of a regular polygon is 20° . How many sides does it have ? What is the measure of each interior angle. What is the total measure of its angles.
- 3) Is it possible to have a regular polygon with measure of each exterior angle as 58° ? Why ? can it be an int.angle of a regular polygon ?
- 4) Find the measure of each exterior angle of a
 - (i) Regular octagon
 - (ii) Regular Decagon
- 5) Find the perimeter of a parallelogram with sides 9cm and 5cm.
- 6) Find the perimeter of a rhombus whose diagonals are 16cm and 12cm
- 7) The adjacent angles of a parallelogram are in the ratio 5:4 . Find all the angles.
- 8) If one of the angles of a parallelogram is a right angle, Prove that it is a rectangle.
- 9) If all the angles of a parallelogram are equal. Prove that it is a rectangle.
- 10) Find the length of the diagonal of a rectangle whose length is 15cm and breadth is 8cm.
- 11) A square is a convex polygon. Explain why ?
- 12) The measure of two adjacent angles of a quadrilateral are 110° and 50° and the other two acute angles are equal. Find the measure of each angle.
- 13) The five angles of a pentagon are in the ratio 5 : 6 : 7: 8 :10. Find all the angles.
- 14) GOAL is a quadrilateral in which $GO \parallel AL$. If $\angle G = \angle O = 40^\circ$.

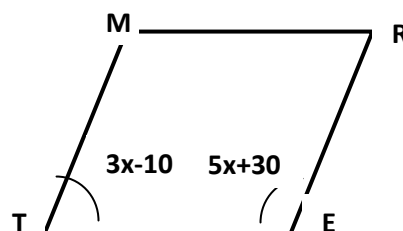
What are the measures of $\angle A$ and $\angle L$.

15) ABCD is a parallelogram what specific name can be given to it if the following additional facts are true ?

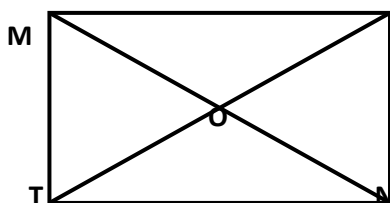
- (i) $AB = AD$ (ii) $\angle DAB = 90^\circ$ (iii) $AB = AD$ and $\angle DAB = 90^\circ$

16) Find the values of x and y in each case.

- (i) TERM is a parallelogram



- ii) MINT is a rectangle

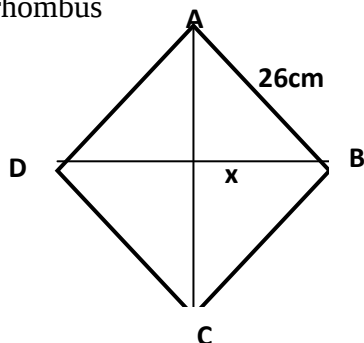


$$OM = 5x + 2$$

$$OI = 17$$

Find MN also.

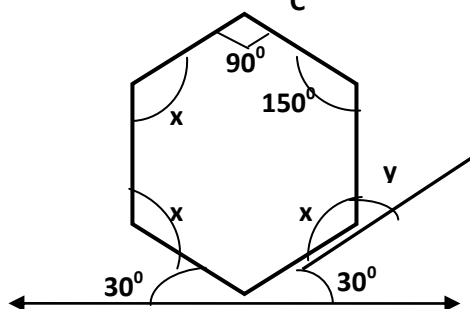
- iii) ABCD is a rhombus



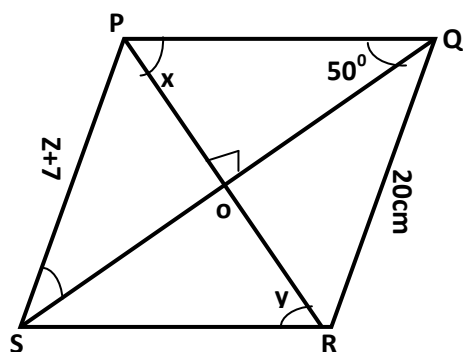
$$AB = 26\text{cm}$$

$$AC = 48\text{cm}$$

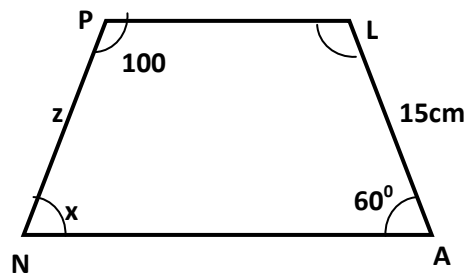
- (iv)



- (v) PQRS is a parallelogram (find z also)



vi) PLAN is a isosceles trapezium in which $PL \parallel NA$ (find z also)



17. What you will call a rhombus in which one angle is 90° .

Answers :

1. $(n-2) \times 180$
2. 18, 160 , 2880
3. No, no
4. $45^\circ, 36^\circ$
5. 28cm
6. 40cm
7. $100^\circ, 80^\circ, 100^\circ, 80^\circ$

8 & 9) Hint : If all angles are 90, it is a rectangle.

10. 17 cm (use Pythagoras theorem)

12. 50, 50, 50, 110

13. 75° , 90, 105 , 120 & 150

14. 140, 140

15. (i) Rhombus (ii) Rectangle (iii) Square

16. (i) 20° (ii) $x = 3$ MN = 6cm (iii) 10cm (iv) 120°

(v) $x = 40^\circ$ $y = 40^\circ$ $z = 13$ cm (vi) $x = 80^\circ$, $y = 120^\circ$ $z = 15$ cm

17. Square.

Practical Geometry

1. Construct a quadrilateral ABCD in which $AB = 4.4\text{cm}$, $BC = 4\text{cm}$, $CD = 6.4\text{cm}$, $DA = 2.8\text{cm}$ and $BD = 6.6\text{cm}$
2. Construct a parallelogram ABCD where $AB = 3.6\text{cm}$, $BC = 4.2\text{cm}$ and $AC = 6.5\text{cm}$.
3. Construct a rhombus with side 6cm and one diagonal 8cm . Measure the other diagonal.
4. Construct a quadrilateral ABCD in which $AB = 5.5\text{cm}$, $AD = 4.4\text{cm}$, $CD = 6.5\text{cm}$, $AC = 6.5\text{cm}$ and $BD = 7.1\text{cm}$.
5. Construct a rhombus COLD in which $CL = 7.5\text{cm}$ and $\overline{OD} = 6\text{cm}$
6. Construct a rectangle PURE in which $PU = 5.5\text{cm}$, $UR = 4\text{cm}$
7. Construct a parallelogram HARD in which $HA = 7\text{cm}$, $AR = 5\text{cm}$, $\angle D = 105^\circ$.
8. Construct a quadrilateral BIRD where $BI = 3.5\text{cm}$, $IR = 6.5\text{cm}$, $\angle B = 75^\circ$, $\angle I = 105^\circ$ and $\angle R = 120^\circ$
9. Construct a quadrilateral PQRS, in which $\angle Q = 45^\circ$, $\angle R = 90^\circ$, $QR = 5\text{cm}$, $PQ = 9\text{cm}$ and $RS = 7\text{cm}$.
10. Construct a kite SOLD if $OD = 8\text{cm}$, $SD = 5\text{cm}$ and $LD = 6\text{cm}$. Which properties of the kite did you use in the process.
11. How will you construct a rectangle PLOT if you know only the lengths PL and LO?
12. Construct a square GOAT with $GO = 4.9\text{cm}$
13. Construct a rhombus in which the diagonals are 6.6cm and 4.8cm long.
14. Construct a square ABCD, given that diagonal $AC = 6\text{cm}$.
15. Construct a parallelogram CARE where $CA = 3.9\text{cm}$ and $AR = 5.5\text{cm}$.
16. Construct a rectangle with adjacent lengths 3.5cm and 4.5cm
17. Construct a rhombus ABCD, with side $AB = 7.3\text{cm}$ and $\angle A = 75^\circ$