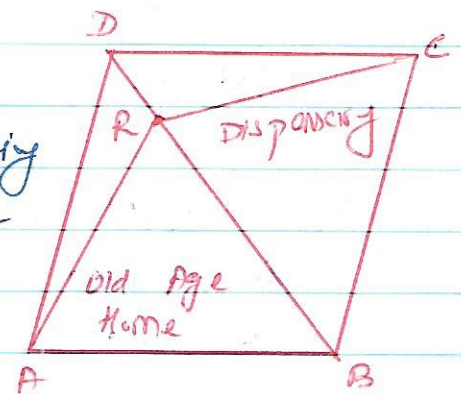


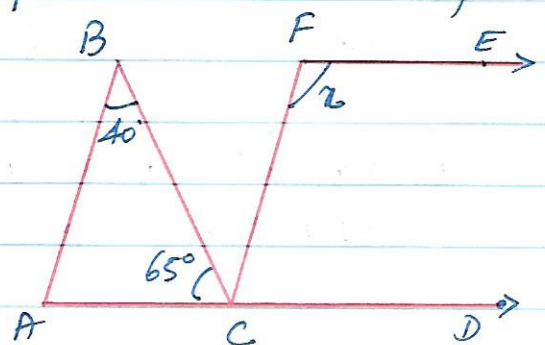
Section-C

- 1) Represent $\sqrt{5}$ on the number line.
- 2) If $2x + 3y = 12$ and $xy = 6$, find the value of $8x^3 + 27y^3$.
- 3) Gurnam and Akhtar have same money with them. Gurnam says to Akhtar, if you give me Rs. 40, my money will be three times the money left with you. Represent this situation as a linear equation in two variables. Also, find two solutions for this equation.
- 4) Half the perimeter of a rectangular garden is 36 m. Write a linear equation which satisfies this data. Draw the graph for the same.
- 5) In which quadrant or on which axis do the points $(-2, -4)$, $(2, 4)$, $(0, 2)$ and $(4, -6)$ lie? Verify your answer by locating them on a cartesian plane.

- 6) In fig, Sunita has a plot of land which she decides to use for building an old age home and a dispensary for the needy. Plot ABCD is a rhombus. If R is a point on diagonal BD, show that equal areas are allotted for building, old age home and the dispensary.

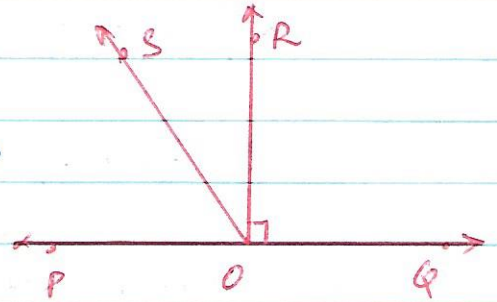


- 7) In fig, if $AB \parallel CF$, $CD \parallel EF$, then find the value of x .



Section-C

- 8) In fig, POQ is a line. Ray OR is perpendicular to line POQ . OS is another ray lying between rays OP and OR . Prove that



$$\angle ROS = \frac{1}{2} (\angle QOS - \angle POS)$$

- 9) If the non-parallel sides of a trapezium are equal, prove that it is cyclic.
- 10) Prove that quadrilateral formed by angle bisectors of a cyclic quadrilateral is also cyclic.

- 11) A die is thrown 1000 times with the frequencies for the outcomes 1, 2, 3, 4, 5 and 6 as given in the following table:

Outcome	1	2	3	4	5	6
Frequency	179	150	157	149	175	190

Find the probability of getting each outcome.

- 12) A right triangle ABC with sides 5 cm, 12 cm and 13 cm is revolved about the side 12 cm. Find the volume of the solid so obtained.

- 13) Construct a right triangle whose base is 12 cm and sum of its hypotenuse and other side is 18 cm.

- 14) Construct a triangle XYZ in which $\angle Y = 30^\circ$, $\angle Z = 90^\circ$
 $XY + YZ + ZX = 11$ cm.

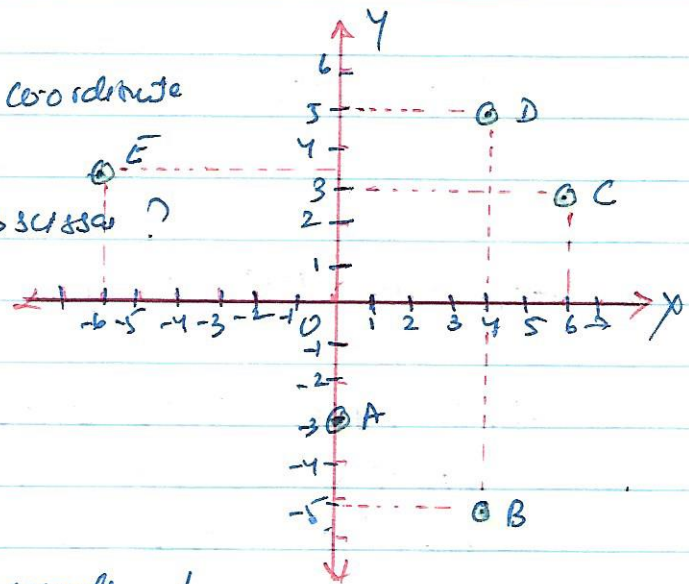
15. If $a = 1 + \sqrt{7}$, find the value of $\frac{-6}{a}$

16. Factorise : $(x-2y)^3 + (2y-3z)^3 + (3z-x)^3$

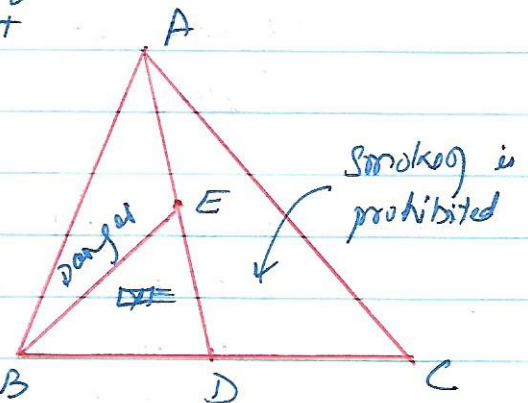
17. If both $(x-2)$ and $(x-\frac{1}{2})$ are factors of px^2+5x+r , show that $p=r$.

18. Draw the graph of linear equation $7x + 5y = 35$. Find the point where this graph meets the line parallel to x -axis and 3 units above it.

19. From the graph, find the coordinate of point A, B, C, D & E. Which point has same abscissa? Also, find which points have same ordinate.



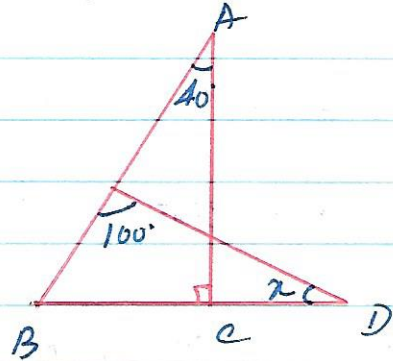
20) To raise awareness about hazards of smoking, a school decides to start 'No smoking' campaign. Students were asked to prepare banners in the shape of triangle as shown. Design of the banner is such that AD is the median and E is the mid point of AD. B



Show that $ar(DBE) = \frac{1}{4} ar(DABC)$

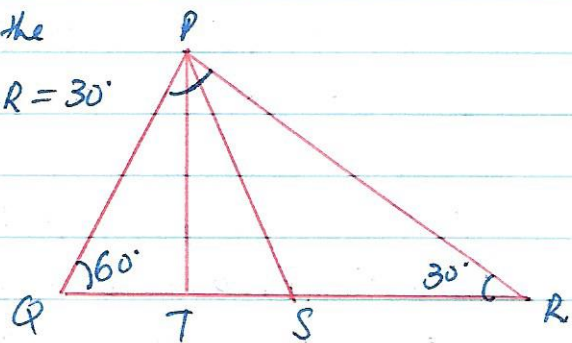
21) O is any point on the diagonal DR of parallelogram $PQRS$. Prove that $ar(\Delta PSO) = ar(\Delta PQO)$.

22) In fig, find x



23) In fig $PT \perp QR$ and PS is the bisector of $\angle P$. $\angle Q = 60^\circ$ $\angle R = 30^\circ$

find $\angle TDS$



24) Prove that a cyclic parallelogram is a rectangle.

25) A tyre manufacturing company kept a record of the distance covered before a tyre needed to be replaced. The table shows the results of 1000 cases.

Distance (km)	less than 4000	4000-9000	9001-14000	more than 14000
Frequency	20	210	325	445

If you buy a tyre of this company, what is the probability that:

(i) it will need to be replaced before it has covered 4000 km?

(ii) it will last more than 9000 km?

(iii) it will need to be replaced after it has covered somewhere between 4000 km & 14000 km?

26) The percentage of marks obtained by a student in monthly unit tests are given below.

Test	I	II	III	IV	V	VI
% of marks	52	60	65	75	80	72

Find the probability that in the next test the student gets

(i) more than 70% marks.

(ii) less than 70% marks.

(iii) at least 60% marks.

27) At a Ramzan Mela, a stall keeper in one of the food stalls has a large cylindrical vessel of base radius 15 cm filled up to a height of 32 cm with orange juice. The juice is filled in small cylindrical glasses of radius 3 cm up to a height of 8 cm, and sold for each Rs. 3. How much money does the stall keeper receive by selling the juice completely.

28) Construct a triangle ABC in which $BC = 8\text{ cm}$, $\angle B = 45^\circ$ and $AB - AC = 3.5\text{ cm}$.

29) Simplify: $3\sqrt{48} - \frac{5}{2}\sqrt{\frac{1}{3}} + 4\sqrt{3}$

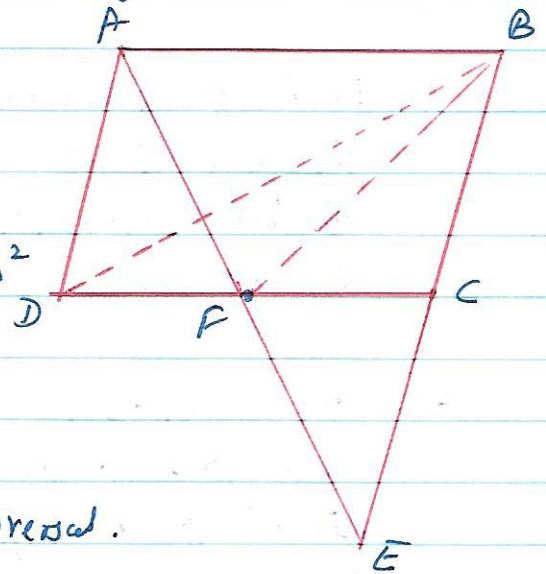
30) If $x + y + z = 12$ and $x^2 + y^2 + z^2 = 64$ then find $xy + yz + zx$.

31) Write any three solutions for the following equation:
 $3x + 4y = 12$

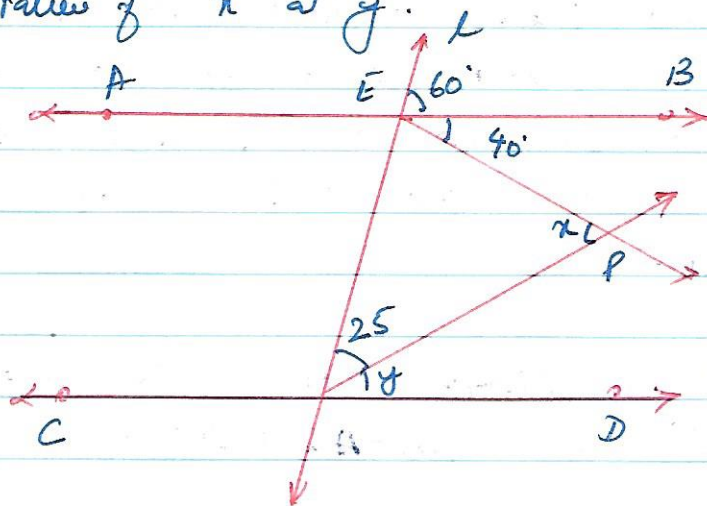
32) Determine the point on the graph of the linear equation $4x - 5y = 7$ whose (i) abscissa is thrice its ordinate (ii) ordinate is $\frac{2}{5}$ times its abscissa.

- 33) P is the point (4, 5), PQ is drawn perpendicular to x-axis, meeting it at Q. Then,
 (i) What are the coordinates of Q?
 (ii) What is the length of PQ?
 (iii) How far is Q from the origin?

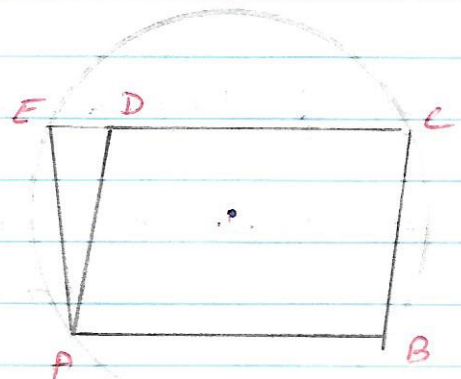
- 34) In fig ABCD is a parallelogram in which BC is produced to E such that CE = BC. AE intersects CD at F. If area of $\triangle BDF = 3\text{cm}^2$ find the area of parallelogram ABCD.



- 35) In fig, $AB \parallel CD$ and L is a transversal. Find the values of x and y.



- 36) ABCD is a parallelogram. The circle through A, B and C intersects CD (produced if necessary) at E. Prove that $AE = AD$.



37) The circum of the $\triangle ABC$ is O . Prove that $\angle OBC + \angle OAC = 90^\circ$

38) The record of a weather station shows that out of the past 250 consecutive days, its weather forecasts were correct 175 times.

(i) What is the probability that on a given day it was correct?

(ii) What is the probability that it was not correct on a given day?

39) Bulbs are packed in cartons each containing 40 bulbs. Seven hundred cartons were examined for defective bulbs and the results are given in the following table.

Number of defective bulbs	0	1	2	3	4	5	6	more than 6
Frequency	400	180	48	41	18	8	3	2

One carton was selected at random. What is the probability that it has:

(i) No defective bulb?

(ii) defective bulb from 2 to 6?

(iii) defective bulb less than 4?

40) The pillars of a temple are cylindrical shaped. If each pillar has a circular base of radius 20 cm and height 10 m, how much concrete mixture would be required to build 14 such pillars?

41) A sphere and right circular cylinder of the same radius have equal volumes. By what percentage does the diameter of the cylinder exceeds its height.

Section C

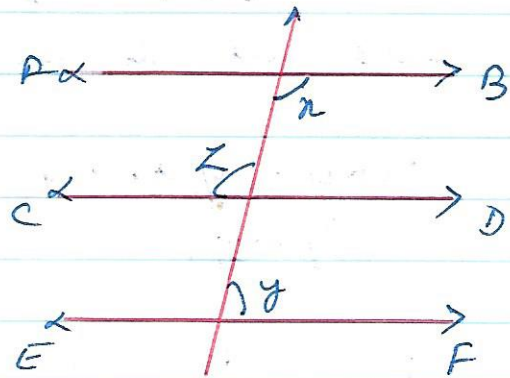
42) Construct a triangle PQR in which $QR = 6 \text{ cm}$, $\angle Q = 60^\circ$ and $PR - PQ = 2 \text{ cm}$.

43) Write $0.23\overline{5}$ in the form of $\frac{p}{q}$, $q \neq 0$, p & q are integers.

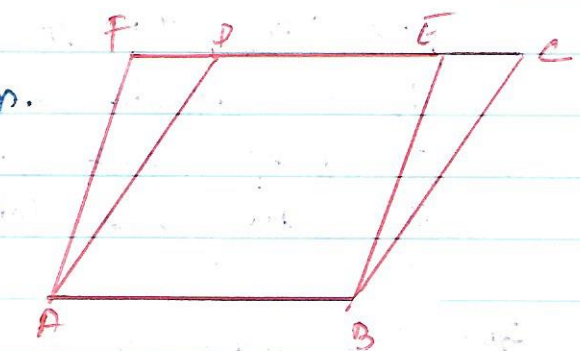
44) Locate $\sqrt{3}$ on the number line.

45) Factorize : (i) $2x^2 + 3\sqrt{5}x + 5$ (ii) $x^3 - 2x^2 - x + 2$

46) Draw the graph of linear equation $x + y = 7$.
At what points, does the graph cut the x-axis and the y-axis.



47) In figure if $AB \parallel CD$
 $CD \parallel EF$
 $x : y = 3 : 2$, find z .



48) In fig, ABCD & ABCE are || gram.

ar(ABCD) = 90 sq cm.

Find (i) ar(ABCE) (ii) ar(ABD)

iii) ar(BEF)

A B

49) Show that a median of a triangle divides it into two triangles of equal areas.

50) Plot the following points and check whether these are collinear or not. $(4, -4)$, $(3, -3)$, $(-2, 2)$, $(-1, 1)$

51) Construct a ΔABC in which $BC = 5 \text{ cm}$, $B = 60^\circ$ and $AB + AC = 7.5 \text{ cm}$.

Section - C

52) Find the area of triangular region two sides of which are 18 m and 10 m and the perimeter is 42 m.

53) Sides of a triangle are in the ratio 12:17:25 and its perimeter is 540 cm. Find its area.

54) A shot putt is a metallic sphere of radius 4.9 cm. If the density of the metal is 7.8 gm/cm^3 , find the mass of the shot-putt.

55) How many litres of milk can a hemispherical bowl of diameter 10.5 cm hold?

56) Find the value of k , if $(1, -1)$ is a solution of the equation $3x - ky = 8$. Also find the coordinates of another point lying on its graph.

57) If two circles intersect in two points, prove that the line through their centre is the perpendicular bisector of the common chord.

58) Represent $\sqrt{9.3}$ on the number line

59) If $p(x) = x^3 - 3x^2 + 4x - 5$ and $s(x) = x - 2$, find the quotient and remainder when $p(x)$ is divided by $s(x)$

60) The volume of a cylindrical pipe is 748 cm^3 . Its length is 0.14 m and its internal radius is 0.09 m. Find thickness of the pipe.

61) Two dice are thrown simultaneously 500 times. Each time the sum of two numbers appearing on them is noted:

Sum:	2	3	4	5	6	7	8	9	10	11	12
Frequency:	14	30	42	55	72	75	70	53	46	28	15

What is the probability of getting a sum:

(i) more than 10 ii) Between 8 & 12.

62) Express $23.\overline{43}$ as $\frac{p}{q}$.

63) A right-angled triangle $\triangle ABC$ with side 3 cm, 4 cm and 5 cm is revolved about the fixed side of 4 cm. Find the volume of the solid generated. Also find the total surface area of the solid.

64) Find the volume of sphere whose surface area is 154 cm^2 .

65) Construct a $\triangle ABC$ such that $BC = 7 \text{ cm}$, $\angle B = 45^\circ$
 and $AB + AC = 13 \text{ cm}$.