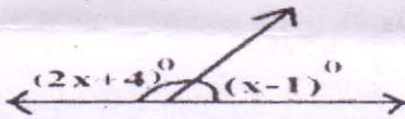


GENERAL INSTRUCTIONS:-

- All questions are compulsory.
- The question paper consists of 30 questions divided into four sections A, B, C and D.
Section-A comprises of 6 questions of 1 mark each,
Section-B comprises of 6 questions of 2 marks each,
Section-C comprises of 10 questions of 3 marks each and
Section-D comprises of 8 questions of 4 marks each.
- Use of calculator is not permitted.

SECTION-A

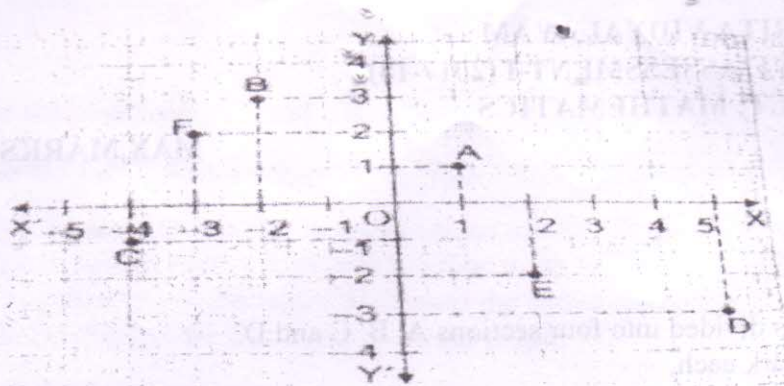
- Evaluate $14\sqrt{112} \div 28\sqrt{7}$ 1
- If $x = 2$ is a zero of the polynomial $x^2 - 2k + 2$ then find the value of k . 1
- If two points have the same abscissa but different ordinates, then the line joining them is parallel to which axis? 1
- Write the equation of the line parallel to the x-axis and at a distance of 5 units above the origin. 1
- In the given figure POQ is a straight line. Find the value of x . 1



- In a ΔABC , D and E are the midpoints of side AB and AC respectively. If $BC = 8$ cm, find the length of DE. 1

SECTION-B

- Factorize $ax - bx + cy + by - cx - ay$ 2
- From the given figure write the following: 2
 - Abscissa of point B
 - Coordinates of point C
 - Point identified by $(2, -2)$
 - Ordinate of point D



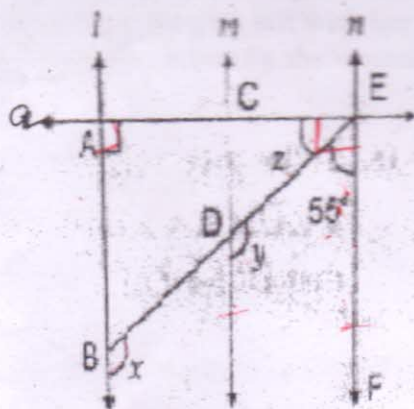
9. Find the points where the graph of the equation $x-5y=3$ cuts the x-axis and the y-axis 2
10. Two adjacent angles of a parallelogram are in the ratio 4:5. Find the angles of a parallelogram. 2
11. The base of an isosceles Δ is 16 cm and one of its equal sides is 10 cm. Find the area of the triangle using Heron's Formula 2
12. A die is thrown 400 times, the frequency of the outcome of the event are given as under. 2

Outcome	1	2	3	4	5	6
Frequency	70	65	60	75	63	77

Find the probability of occurrence of an odd number.

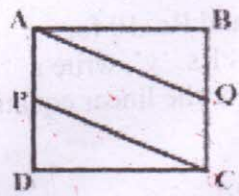
SECTION-C

13. If a and b are rational numbers, find the value of a and b if $\frac{\sqrt{2}+\sqrt{3}}{3\sqrt{2}-2\sqrt{3}} = a-b\sqrt{6}$ 3
14. If $x^2 + \frac{1}{x^2} = 18$, find the value of $x^3 + \frac{1}{x^3}$. 3
15. Graph the points A(4,1), B(1,5) and C(-2,1) on a graph paper. Draw ΔABC and find its area. 3
16. Show that the points A(1,-1), B(2,6) and C(0,-8) lie on the graph of the linear equation $7x - y = 8$ 3
17. In the given figure $l \parallel m \parallel n$ and $a \perp l$. If $\angle BEF = 55^\circ$, find the values of x, y and z. 3

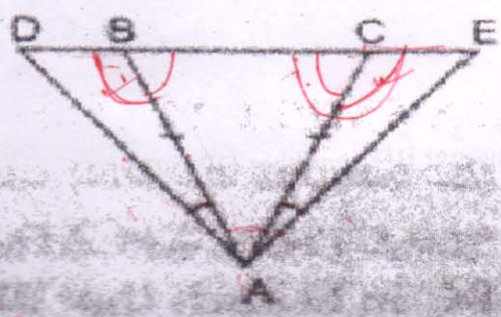


$z = 35^\circ$
 $55 + y = 180$
 $y = 180 - 55 = 125^\circ$
 $x = y$ (corresponding)
 $x = 125^\circ$

18. ABCD is a square. P and Q are the midpoints of ^{AD}AB and ^{BC}BC respectively. Prove that QA = PC 3



19. In the given figure, AB = AC, $\angle DAB = \angle EAC$. Prove that AD = AE 3



20. Prove that the bisector of any two consecutive angles of a parallelogram intersect at right angle. 3

21. A recent survey found that the ages of workers in a factory are distributed as follows: 3

Age (in years)	20-29	30-39	40-49	50-59	60 and above
Number of workers	38	27	86	46	3

If a person is selected at random, find the probability that the person is:

- a) 40 years or more
- b) under 40 years
- c) under 60 but over 39 years

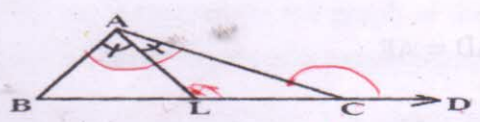
22. Construct a ΔABC in which $BC = 7$ cm, $\angle B = 75^\circ$ and $AB + AC = 13$ cm 3

Continued on page 4

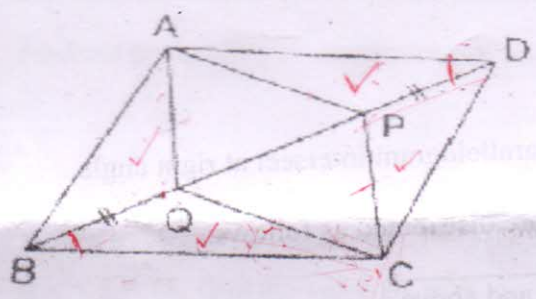
SECTION-D



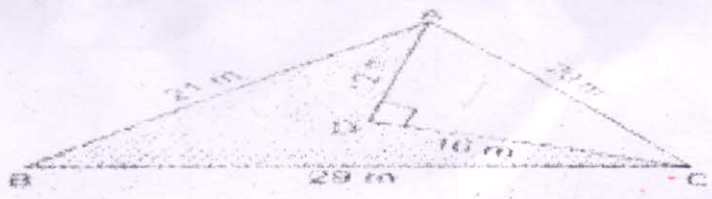
- 23. ✓ Locate the points $\sqrt{6}$, $\sqrt{7}$ and $\sqrt{8}$ on the numbers line 4
- 24. ✓ Show that $(x-1)$ is a factor of $p(x) = x^3 + 2x^2 - x - 2$ and hence factorize $p(x)$ 4
- 25. ✓ The parking charges of a car in a parking lot are Rs. 30 for the first two hours and Rs. 10 for subsequent hours. Taking total parking time to be 'x' hours and total charges as Rs. 'y', write a linear equation in two variables to express the above statement. Draw a graph for the linear equation and tell the charges for five hours from the graph. 4
- 26. ✓ The side BC of a ΔABC is produced to D. The bisector of $\angle A$ meets BC in L. Prove that $\angle ABC + \angle ACD = 2\angle ALC$ 4



- 27. ✓ In a parallelogram ABCD, two points P and Q are taken on diagonal BD such that $DP = BQ$. Show that APCQ is a parallelogram 4



- 28. ✓ State and prove the midpoint theorem. 4
- 29. ✓ A woman inherits a triangular plot of land ABC as shown in the figure. She contributes to society by donating a triangular piece ADC out of this plot for constructing an old age home. 4
 - a) Find the area of the plot left with her
 - b) What values are shown by the woman?



- 30. ✓ Construct a ΔXYZ in which $\angle Y = 45^\circ$, $\angle Z = 30^\circ$ and $XY + YZ + ZX = 10$ cm 4