



General Instructions:

- i. This question paper consists of five sections –Section A, Section B, Section C, Section D.& Section E.
- ii. Section A consists of twenty questions (Q no. 1-20) of one mark each.
- iii. Section B consists of five questions (Q no. 21- 25) of two marks each.
- iv. Section C consists of six questions (Q no. 26 - 31) of three marks each.
- v. Section D consists of four questions (Q no. 32-35) of five marks each.
- vi. Section E consists of three case study based questions (Q no. 36-38) of four marks each including three subparts of 1, 1 and 2 marks respectively.
- vii. Draw neat figures wherever required.
- viii. Internal choice is given.

SECTION – A

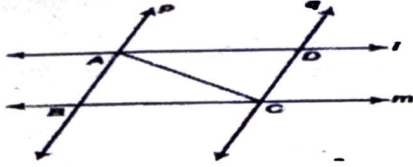
Choose the Correct Option:

1. $x=2, y= -1$ is a solution of which linear equation?
a. $x+y=1$ b. $x+y=4$ c. $2x+y=0$ d. $2x+2y=3$
2. Pair of corresponding angles are equal if the lines are:
a. Parallel b. Perpendicular c. intersecting d. none of these
3. Abscissa of all points on y-axis is:
a. 0 b. 1 c. 2 d. -1
4. An equation $3x+4y=7$ has:
a. two solutions b. no solution
c. infinitely many solutions d. one solution
5. The zero of polynomial $p(x) = 5x+2$ is:
a. $-\frac{5}{2}$ b. 5 c. $-\frac{2}{5}$ d. -2
6. Half of the perimeter is _____
a. Area b. Volume c. semi perimeter d. Perimeter
7. A point $(-2,-4)$ will lie in:
a. I quadrant b. II quadrant c. III quadrant d. IV quadrant
8. $(\sqrt{3} + 1)(\sqrt{3} - 1) =$
a. 4 b. 1 c. 0 d. 2
9. Which of the following is not a rational number?
a. 1 b. π c. 2 d. 0
10. If $\angle S$ and 80° are supplementary angles. What is the measure of $\angle S$?
a. 180° b. 120° c. 90° d. 100°
11. In $\triangle ABC$, $BC = AB$ and $\angle B = 80^\circ$. Then $\angle A$ is equal to:
a. 80° b. 50° c. 90° d. 40°
12. $3\sqrt{3} \times \sqrt{3}$
a. 9 b. 6 c. $3\sqrt{3}$ d. $\sqrt{3}$
13. The degree of polynomial $(x^2+3)(x+4)$ is:
a. 3 b. Not defined c. 0 d. 2
14. If $p(x) = 4+3x + 2x^2$ then value of $p(-1)$ is:
a. 12 b. 3 c. 4 d. 1
15. Which of these is not a congruency rule?
a. SAS b. RHS c. SSA d. SSS
16. Things which are double to the same thing are _____ to one another.
a. Equal b. Parallel c. Perpendicular d. None of these
17. $5.222\dots$ in $\frac{p}{q}$
a. $\frac{43}{9}$ b. $\frac{47}{9}$ c. $\frac{52}{9}$ d. $\frac{5222\dots}{1000\dots}$
18. The coefficient of x^2 in the polynomial x^3+2x+4 ?
a. $-\frac{1}{2}$ b. 2 c. $\frac{1}{2}$ d. 0
19. Assertion : A triangle can have two obtuse angles.
Reason: The sum of all the interior angles of a triangle is 180°
a. Both Assertion(A) and reason(R) are correct and reason is the correct explanation for assertion
b. Both Assertion(A) and reason(R) are correct and reason is not the correct explanation for assertion
c. Assertion(A) is true but the reason(R) is false.
d. Assertion (A) is false but reason(R) is true.

20. Assertion: A point whose abscissa is 2 and ordinate is -3 lies in fourth quadrant
Reason: Points of the type $(-, +)$ lie in the second quadrant
- Both Assertion(A) and reason(R) are correct and reason is the correct explanation for assertion
 - Both Assertion(A) and reason(R) are correct and reason is not the correct explanation for assertion
 - Assertion(A) is true but the reason(R) is false.
 - Assertion (A) is false but reason(R) is true.

SECTION - B

21. l and m are two parallel lines intersected by another pair of parallel lines p and q (see figure). Show that $\triangle ABC \cong \triangle CDA$.



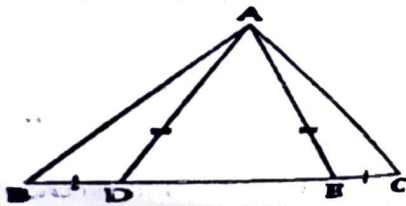
22. Rationalize $\frac{1}{\sqrt{3}-1}$
OR

Find four rational numbers between $\frac{3}{4}$ and $\frac{4}{5}$

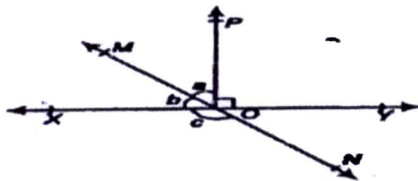
23. Show that $p-1$ is a factor of $p^{10}-1$ and also of $p^{11}-1$.
24. If a point C lies between two points A and B such that $AC = BC$, then prove that $AC = \frac{1}{2} AB$, explain by drawing the figure.
25. Without calculating the cubes, find the value of $(-15)^3 + (10)^3 + (5)^3$

SECTION - C

26. Plot the points $(3,3)$, $(2,-2)$, $(2,3)$ and $(0,-1)$ in Cartesian plane. Check whether they are collinear.
27. In the given figure, $AD = AE$ and D and E are points on BC such that $BD = EC$. Prove that $AB = AC$.

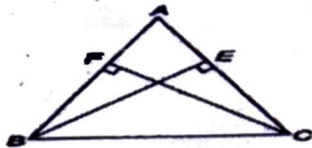


28. Represent $\sqrt{20}$ on number line
29. Simplify: If $2x + 3y = 8$ and $xy = 2$, find $4x^2 + 9y^2$.
30. If $4^{2x-1} - 16^{x-1} = 384$, Find the value of x .
31. In figure, lines XY and MN intersect at O . If $\angle POY = 90^\circ$ and $a : b = 2 : 3$, find c .



OR

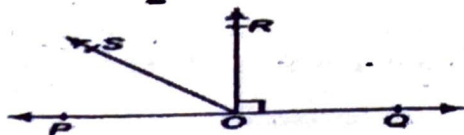
ABC is an isosceles triangle in which altitudes BE and CF are drawn to equal sides AC and AB respectively (see figure). Show that these altitudes are equal.



SECTION - D

32. In figure, POQ is a line. Ray OR is perpendicular to line PQ . OS is another ray lying between rays OP and OR . Prove that:

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

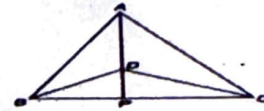


33. Find a and b if $\frac{3+\sqrt{5}}{3-\sqrt{5}} + \frac{3-\sqrt{5}}{3+\sqrt{5}} = a+b\sqrt{15}$
OR

Find the value of p for which the polynomial x^3+4x^2-px+8 is exactly divisible by $(x-2)$. Hence, factorise the polynomial.

34. $\triangle ABC$ and $\triangle DBC$ are two isosceles triangles on the same base BC and vertices A and D are on the same side of BC (see figure). If AD is extended to intersect BC at P, Show that:

- (i) $\triangle ABD \cong \triangle ACD$
- (ii) $\triangle ABP \cong \triangle ACP$
- (iii) AP bisects $\angle A$ as well as $\angle D$



35. The sides of a triangle are in the ratio 5:12:13 and its perimeter is 300 cm. Find its Area.

SECTION – E

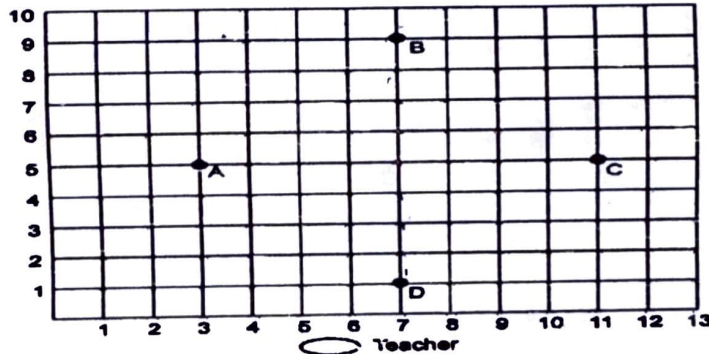
36. One day, the Principal of a particular school visited the classroom. The class teacher was teaching the concept of polynomials to students. He was very much impressed with her way of teaching. To check, whether the students also understood the concept taught by her or not, he asked various questions to them. Some of them are given below. Answer them

- a) On the basis of degree, $2x^2+4x+5$ is a _____ polynomial.
- b) Write the number of zeroes of $7x^3+2x+3$
- c) Find the value of k, if $(x-1)$ is a factor of $4x^2-3x+k$.

OR

Find the value of k, if $(x-2)$ is a factor of $2x^2-4x+k$.

37. Students of a school are standing in rows and columns in their playground for a drill practice. A, B, C and D are the positions of four students as shown in the figure.

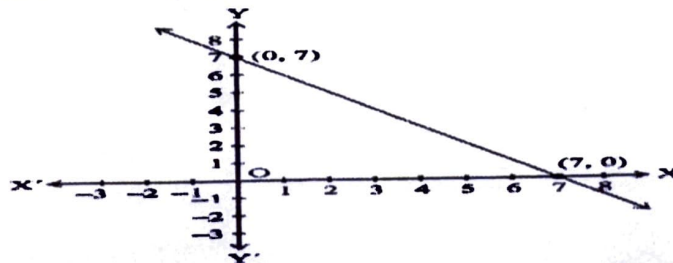


- a) What are the coordinates of A and B respectively?
- b) Find: (Abscissa of A + Ordinate of B)
- c) What is the distance between B and D?

OR

What is the distance between A and C?

38. Aditya purchased two types of chocolates A and B at the rate of Rs. x and Rs. y respectively. The total amount spent is Rs. 7. After reaching home, he forms a linear equation in two variables for two types of chocolates. He prepares a table and a graph of the linear equation as shown in adjoining graph:



- a) How to represent the above situation in linear equations in two variables
- b) If the cost of chocolates A is 4, then find the cost of chocolates B?
- c) For what value of k, $x = 2$ and $y = -1$ is a solution of $x + 3y - k = 0$.

OR

For what value of k, $x = 3$ and $y = -3$ is a solution of $kx + 2y = 0$.