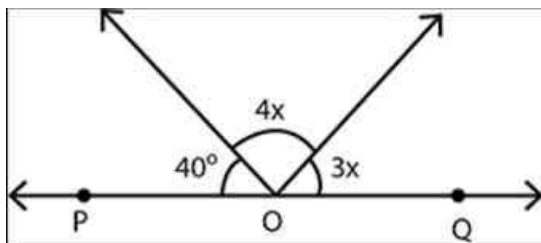


Note: All questions are compulsory.

Section - A (each Question carry 01 mark)

- (1) If $(x - 2)$ is a factor of $p(x) = x^2 - kx + 1$ then the value of k is
 (a) 5 (b) 4 (c) 2 (d) none of these
- (2) Between two rational numbers, there is:
 (a) Only one rational number (b) Infinitely many rational numbers
 (c) No rational number (d) Only two rational numbers
- (3) Which of the following is not a real number
 (a) $\sqrt{2}$ (b) 4 (c) $-\sqrt{2}$ (d) $\sqrt{-2}$
- (4) Which of the following is not an irrational number.
 (a) 0.1010010001.... (b) $\sqrt{11}$ (c) π (d) 1.33333....
- (5) Which number has a terminating decimal expansion.
 (a) $\frac{3}{14}$ (b) $\frac{7}{8}$ (c) $\frac{5}{12}$ (d) $\frac{4}{9}$
- (6) If $P(x) = x^2 - 25$, then the zeroes are
 (a) only (+ 5) (b) only -5 (c) +5 and -5 both (d) None of these
- (7) The degree of a polynomial: $4x^3y^2 + 7xy - 4$ is
 (a) 2 (b) 4 (c) 5 (d) None of these
- (8) Two complementary angles differ by 18° . The angles are:
 (a) 36° and 54° (b) 42° and 48° (c) 30° and 60° (d) 18° and 72°
- (9) If two lines are parallel and are intersected by a transversal, then which of the following is not true?
 a) Corresponding angles are equal (b) Alternate interior angles are equal
 c) Vertically opposite angles are equal (d) Sum of corresponding angles is 180°
- (10) The value of x and the largest angle in the given figure is
 (a) 20° and 60° (b) 20° and 80° (c) 40° and 80° (d) none of these



- (11) The abscissa of point $(-4, 5)$ is:
 a) -4 (b) 5 (c) 4 (d) -5
- (12) The coordinate of a point $P(x, y)$ verifies the relation $x + y = -4$ and $x = 5$. In which Quadrant the point lie.
 (a) I Quadrant (b) I Quadrant (c) III Quadrant (d) IV Quadrant
- (13) The coordinate of mirror image of a point A is $(4, -5)$ then the coordinate of point A is, if the mirror is placed on X axis in front of object.
 (a) $(-4, 5)$ (b) $(-4, -5)$ (c) $(4, -5)$ (d) $(4, 5)$

(14) The graph of a linear equation in two variables is always a:

- a) Point b) Curve c) Straight line d) Circle

(15) How many solutions does a linear equation in two variables have?

- a) 1 b) 2 c) Infinitely many d) 0

(16) Which equation represents a line passing through origin?

- a) $x + y = 5$ b) $2x - y = 0$ c) $x = 2$ d) $y = -3$

(17) The solution of equation $2x + 3y = 6$ is:

- a) (0, 2) b) (3, 0) c) (6, 0) d) Both (0, 2) and (3, 0)

(18) The cost of a pen is ₹x and the cost of a pencil is ₹y. The cost of 2 pens and 3 pencils can be represented as:

- a) $2x + 3y$ b) $2y + 3x$ c) $3(x + y)$ d) $2(x + y)$

(19) Assertion (A): The semi-perimeter of a triangle with sides 7 cm, 9 cm and 13 cm is 14.5 cm.

Reason (R): $s = \frac{7+9+13}{2} = \frac{29}{2} = 14.5$

- a) Both A and R are true, and R is the correct explanation of A.
- b) Both A and R are true, but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

(20) Assertion (A): Every rational number is a real number.

Reason (R): The set of real numbers consists of both rational and irrational numbers.

- a) Both A and R are true, and R is the correct explanation of A.
- b) Both A and R are true, but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

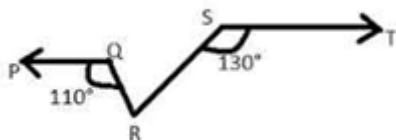
Section - B (each question carries 02 marks)

(21) Find the value of k if $x + 1$ is a factor of $p(x) = kx^2 - 3x + k$

(22) Write the Coordinate of the point

- A point which lies in 2nd Quadrant and is at a distance of 4 units from X-axis.
- A point lies on X and y axis both.
- A point whose ordinate is -5 and abscissa is 0.
- A point A(x,y) where $x + y = 5$, $y = 2$

(23) Find the value of $\angle QRS$ in the following figure



(24) Find area of a triangle whose sides are 15cm, 20 cm and 25cm.

(25) Write the following linear equation in two variables in their general form $ax + by + c = 0$ also write the value of a, b, c

(a) $2x = 3y$

(b) $x = 4$

Section - C (Each question carries 3 marks)

(26) Factorise

(i) $27p^3 - \frac{1}{216} - \frac{9}{2}p^2 + \frac{1}{4}$

(ii) $27x^3 - 125y^3$

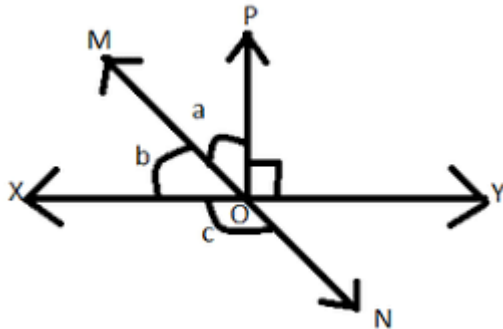
(27) Simplify

1. $(3 + \sqrt{3})(2 + \sqrt{2})$

2. $\sqrt{32} + \sqrt{18} - \sqrt{98}$

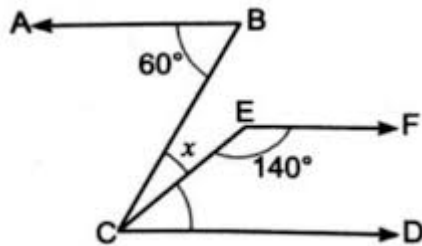
(28) Give possible expression for the length and breadth of the following rectangle in which their area is given by $x^2 - 16x + 48$

(29) In the given figure the ratio between a and b is 2:3, if $\angle POY = 90^\circ$ find the value of a, b, c.



(30) Represent $\sqrt{5}$ on number line

(31) Find the value of x in the given figure, if $AB \parallel CD \parallel EF$.



Section - D (each question carries 5 marks)

(32) $2x + 3y = 4z$ then find the value of $8x^3 + 27y^3 - 64z^3$

OR

Factorise $x^3 + x^2 - 14x - 24$

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

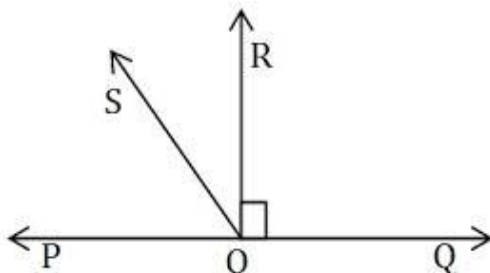
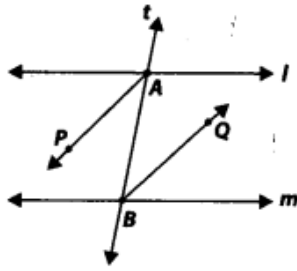


Fig. 5

OR

In figure AP and BQ are the bisectors of the two alternate interior angles formed by the intersection of a transversal t with parallel lines l and m. Show that AP || BQ.



(34) Sides of a triangle are in the ratio of 12:17:25 and its perimeter is 540cm find its area using Herons' formula.

(35) Represent : $\sqrt{9.4}$ on the number line

OR

Simplify: $\frac{1}{2-\sqrt{3}} - \frac{1}{\sqrt{3}-\sqrt{2}} + \frac{1}{\sqrt{2}-1}$

Section - E (each question carries 4 marks)

Case Study 1

A shopkeeper sells pen and pencils. The cost of one pen is Rs 10 and the cost of one pencil is Rs 5 A student buys some pens and pencils for his studies.

Based on the situation answer the following

- Q1. If student buys x pens and y pencil write the total cost in the form of linear expression. (1)
- Q2) If the student spends Rs. 50 in total write the corresponding equation (1)
- Q3. Find two possible solutions for the same.. (2)

Case Study 2

A group of students of class 9 decided to make a park inside their school campus. They marked the four corners of park as A(5,3) ,B(-5,3) ,C(-6,-2 and) and D(4,-2).

- (i) Plot the above points (2)
- (ii) Join AB, BC, CD, DA and name the figure obtained (1)
- (iii) Find the area of the Figure ABCD. (1)

Case Study 3

School planned to decorate its triangular garden with colourful tiles. the triangular garden has sides measuring 13cm,14 cm and 15 cm. the gardener wants to calculate the area of the garden to know how many tiles will be required

Answer the questions

- (i) What is semi perimeter of the triangle? (1)
- (ii) Using Herons formula, find area of garden (1)
- (iii) If each tile covers an area of 1 sq metre how many tiles will be needed to cover the garden. (1)
- (iv) Cost of tiling is Rs 25 per sq m, find the cost of tiling (1)