Maths

Reg.No. : ☐☐☐☐☐☐

I.Answer all the questions.

II.Use Blue pen only.

Time : 01:00:00 Hrs

Total Marks : 60

Section-A

5 x 1 = 5

1) The point of intersection of the straight lines 9x - y - 2 = 0 and 2x + y - 9 = 0 is

   (a) (-1 , 7)   (b) (7 , 1)   (c) (1 , 7)   (d) (-1 , -7)

2) The straight line 4x + 3y - 12 = 0 intersects the y- axis at

   (a) (3 , 0)   (b) (0 , 4)   (c) (3 , 4)   (d) (0 , -4)

3) The slope of the straight line 7y - 2x = 11 is equal to

   (a) $-\frac{7}{2}$ (b) $\frac{7}{2}$ (c) $\frac{2}{7}$ (d) $-\frac{2}{7}$

4) The equation of a straight line passing through the point (2 , –7) and parallel to x-axis is

   (a) x = 2   (b) x = - 7   (c) y = - 7   (d) y = 2

5) The x and y-intercepts of the line 2x - 3y + 6 = 0, respectively are

   (a) 2 , 3   (b) 3 , 2   (c) - 3 , 2   (d) 3 , - 2

Section-B

6 x 2 = 12

6) Vertices of the triangles taken in order and their areas are given below. In each of the following find the value of a.

   Vertices   Area (in sq. units)

   (0 , 0) , (4, a), (6, 4)   17

7) Determine if the following set of points are collinear or not. (4, 3), (1, 2) and (-2, 1)

8) In each of the following, find the value of k for which the given points are collinear. (k, -1), (2, 1) and (4, 5)

9) If the three points(h , 0), (a, b) and (0 , k) lie on a straight line, then using the area of the triangle formula, show that $\frac{a}{h} + \frac{b}{k} = 1$ where $h,\ k \neq 0$

10) Find the angle of inclination of the straight line whose slope is $\frac{1}{\sqrt{3}}$

11) Find the slope of the straight line whose angle of inclination is 45°

Section-C

6 x 5 = 30

12) Using the concept of slope, show that the points A(5, -2), B(4, -1) and C(1, 2) are collinear.

13) Using the concept of slope, show that the points (-2 , -1), (4 , 0), (3 , 3) and (-3 , 2) taken in order form a parallelogram.

14) The vertices of a $\triangle ABC$ are A(1 , 2), B(-4 , 5) and C(0 , 1).Find the slopes of the altitudes of the triangle.

15) Using the concept of slope, show that each of the following set of points are collinear. (2, 3), (3 , -1) and (4 , -5)

16) If the points (a, 1), (1, 2) and (0, b+1) are collinear, then show that $\frac{1}{a} + \frac{1}{b} = 1$

17) The line joining the points A(-2 , 3) and B(a , 5) is parallel to the line joining the points C(0 , 5) and D(-2 , 1). Find the value of a.

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