DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject : MATHS**
Date : **DPP No. : 4**

Topic :- STRAIGHT LINES

1. Equation of straight line cutting off an intercept 2 from the negative direction of the axes of y and inclined at 30° to the positive direction of axis of x, is
a) $y + x - \sqrt{3} = 0$ b) $y - x + 2 = 0$ c) $y - \sqrt{3}x - 2 = 0$ d) $\sqrt{3}y - x + 2\sqrt{3} = 0$

2. Distance between the pair of lines represented by the equation $x^2 - 6xy + 9y^2 + 3x - 9y - 4 = 0$, is
a) $\frac{15}{\sqrt{10}}$ b) $\frac{1}{2}$ c) $\sqrt{\frac{5}{2}}$ d) $\frac{1}{\sqrt{10}}$

3. The line $3x + 2y = 24$ meets y-axis at A and x-axis at B. The perpendicular bisector of AB meets the line through $(0, -1)$ parallel to x-axis at C. The area of the triangle ABC is
a) 182 sq. units b) 91 sq. units c) 48 sq. units d) None of these

4. The coordinates of three vertices of a quadrilateral in order are (6,1),(7,2) and $(-1,0)$. If the area of the quadrilateral is 4 square units, then the locus of the fourth vertex is
a) $x - 7y = 1$
b) $x - 7y + 15 = 0$
c) $(x - 7y)^2 + 14(x - 7y) - 15 = 0$
d) None of these

5. Two points $(a,0)$ and $(0,b)$ are joined by a straight line. Another point on this line, is
a) $(3a, -2b)$ b) (a^2,ab) c) $(-3a,2b)$ d) (a,b)

6. The lines $(lx + my)^2 - 3(mx - ly)^2 = 0$ and $lx + my + n = 0$ form
a) An isosceles triangle b) A right angled triangle
c) An equilateral triangle d) None of these

7. The distance between the pair of lines represented by the equation $x^2 - 6xy + 9y^2 + 3x - 9y - 4 = 0$ is
a) $\frac{15}{\sqrt{10}}$ b) $\frac{1}{2}$ c) $\sqrt{\frac{5}{2}}$ d) $\frac{1}{\sqrt{10}}$

8. $P(3, 1), Q(6,5)$ and $R(x,y)$ are three points such that the angle PRQ is a right angle and the area of $\Delta\, RQP = 7$, then the number of such points R is
a) 0 b) 1 c) 2 d) 4

9. The equation $x^3 - 6x^2y + 11xy^2 - 6y^3 = 0$ represents three straight lines passing through the origin, the slopes of which form an
a) A.P. b) G.P. c) H.P. d) None of these

10. The equation of the line bisecting perpendicularly the segment joining the points $(-4,6)$ and (8,8) is
a) $6x + y - 19 = 0$ b) $y = 7$ c) $6x + 2y - 19 = 0$ d) $x + 2y - 7 = 0$

11. The equation of the sides of a triangle are $x - 3y = 0$, $4x + 3y = 5$ and $3x + y = 0$. The line $3x - 4y = 0$ passes through

a) The incentre b) The centroid c) The orthocenter d) The circumcentre

12. If the slope of one of the lines given by $ax^2 - 6xy + y^2 = 0$ is twice the other, then $a =$

a) 1 b) 2 c) 4 d) 8

13. The point (4, 1) undergoes the following three successive transformations

I. Reflection about the line $y = x - 1$

II. Translation through a distance 1 unit along the positive direction of x-axis

III. Rotation through an angle $\frac{\pi}{4}$ about the origin in the anti-clockwise direction

Then, the coordinates of the final point are

a) (4, 3) b) $\left(\frac{7}{2}, \frac{7}{2}\right)$ c) $(0, 3\sqrt{2})$ d) (3, 4)

14. Which of the following pair of straight lines intersect at right angle?

a) $2x^2 = y(x + 2y)$

b) $(x + y)^2 = x(y + 3x)$

c) $2y(x + y) = xy$

d) $y = \pm 2x$

15. Given four lines whose equations are $x + 2y - 3 = 0$, $2x + 3y - 4 = 0$, $3x + 4y - 7 = 0$ and $4x + 5y - 6 = 0$, then the lines are

a) Concurrent b) Sides of a square c) Sides of a rhombus d) None of these

16. The equation $2x^2 - 24xy + 11y^2 = 0$ represents

a) Two parallel lines b) Two perpendicular lines

c) Two lines passing through the origin d) A circle

17. A straight line through $P(1,2)$ is such that its intercept between the axes is bisected at P. Its equation is

a) $x + y = -1$ b) $x + y = 3$ c) $x + 2y = 5$ d) $2x + y = 4$

18. The value of λ such that $\lambda x^2 - 10xy + 12y^2 + 5x - 16y - 3 = 0$ represent a pair of straight lines, is

a) 1 b) -1 c) 2 d) -2

19. If a straight line L is perpendicular to the line $5x - y = 1$ such that the area of the Δ formed by the line L and the coordinate axes is 5, then the equation of the line L is

a) $x + 5y + 5 = 0$ b) $x + 5y \pm \sqrt{2} = 0$ c) $x + 5y \pm \sqrt{5} = 0$ d) $x + 5y \pm 5\sqrt{2} = 0$

20. The position of a moving point in the xy plane at time t is given by $\left(u\cos\alpha \cdot t, u\sin\alpha \cdot t - \frac{1}{2}gt^2\right)$, where u, α, g are constants. The locus of the moving point is

a) A circle b) A parabola c) An ellipse d) None of these