DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject : MATHS**
Date : **DPP No. : 8**

Topic :- STRAIGHT LINES

1. The point $P(1,1)$ is translated parallel to $2x = y$ in the first quadrant through a unit distance. The coordinates of the new position of P are

a) $\left(1 \pm \frac{2}{\sqrt{5}}, 1 \pm \frac{1}{\sqrt{5}}\right)$ b) $\left(1 \pm \frac{1}{\sqrt{5}}, 1 \pm \frac{2}{\sqrt{5}}\right)$ c) $\left(\frac{1}{\sqrt{5}}, \frac{2}{\sqrt{5}}\right)$ d) $\left(\frac{2}{\sqrt{5}}, \frac{1}{\sqrt{5}}\right)$

2. If, $\frac{x^2}{a} + \frac{y^2}{b} + \frac{2xy}{h} = 0$ represents pair of straight lines such that slope of one line is twice the other. Then, $ab{:}h^2$ is

a) 9:8 b) 8:9 c) 1:2 d) 2:1

3. If the vertices of a diagonal of a square are $(-2,4)$ and $(-2,-2)$, then its other two vertices are at

a) $(1,-1),(5,1)$ b) $(1,1),(5,-1)$ c) $(1,1),(-5,1)$ d) None of these

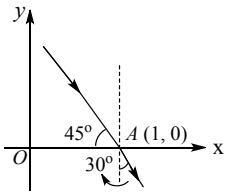
4. If one of the diagonals of a square is along the line $x = 2y$ and one of its vertices is $(3, 0)$, then its sides through this vertex are given by the equations

a) $y - 3x + 9 = 0, 3y + x - 3 = 0$
b) $y + 3x + 9 = 0, 3y + x - 3 = 0$
c) $y - 3x + 9 = 0, 3y - x + 3 = 0$
d) $y - 3x + 3 = 0, 3y + x + 9 = 0$

5. The line passing through $\left(-1, \frac{\pi}{2}\right)$ and perpendicular to $\sqrt{3}\sin\theta + 2\cos\theta = \frac{4}{r}$, is

a) $2 = \sqrt{3}r\cos\theta - 2r\sin\theta$ b) $5 = -2\sqrt{3}r\sin\theta + 4r\cos\theta$
c) $2 = \sqrt{3}r\cos\theta + 2r\sin\theta$ d) $5 = 2\sqrt{3}r\sin\theta - 4r\cos\theta$

6. In the adjacent figure, equation of refracted ray is



a) $y = \sqrt{3}x + 1$ b) $y + \sqrt{3}x - 3 = 0$ c) $\sqrt{3}x + y - \sqrt{3} = 0$ d) None of these

7. Two points A and B have coordinates $(1, 1)$ and $(3, -2)$ rrespectively. The coordinates of a point at a distance $\sqrt{85}$ from B on the line through B perpendicular to AB, are

a) $(4, 7)$ b) $(7, 4)$ c) $(5, 7)$ d) $(-5, -3)$

8. If $5a + 4b + 20c = t$, then the value of t for which the line $ax + by + c - 1 = 0$ always passes through a fixed point is

a) 0 b) 20 c) 30 d) None of these

9. The value of λ, for which the equation $x^2 - y^2 - x + \lambda y - 2 = 0$ represents a pair of straight lines, are

a) $-3, 1$ b) $-1, 1$ c) $3, -3$ d) $3, 1$

10. The line which is parallel to x-axis and crosses the curve $y = \sqrt{x}$ at an angle 45°, is

a) $y = \frac{1}{4}$ b) $y = \frac{1}{2}$ c) $y = 1$ d) $y = 4$

11. Consider the following statements:

I. The lines $2x + 3y + 19 = 0$ and $9x + 6y - 17 = 0$ cut the coordinates axes in concyclic points

II. The points $(2, -5)$ and $(-1, 4)$ are equidistant from the line $3x + y + 5 = 0$

Which of these is/are correct?

a) Only (1) b) Only (2) c) Both of these d) None of these

12. The angle between the lines $x^2 + 4xy + y^2 = 0$ is

a) 60° b) 15° c) 30° d) 45°

13. The y-intercept of the line passing through (2,2) and perpendicular to the line $3x + y = 3$ is

a) 1/3 b) 2/3 c) 1 d) 4/3

14. If one of the lines given by $6x^2 - xy + 4cy^2 = 0$ is $3x + 4y = 0$, then c equals

a) 1 b) -1 c) 3 d) -3

15. For what value of k is $4x^2 + 8xy + ky^2 = 9$ the equation of a pair of straight lines?

a) 0 b) 4 c) 9 d) -9

16. The equation of the line bisecting perpendicularly the segment joining the points $(-4,6)$ and $(8, 8)$ is

a) $y = 7$ b) $6x + y - 19 = 0$ c) $x + 2y - 7 = 0$ d) $6x + 2y - 19 = 0$

17. The locus of the point of intersection of lines $x\cos\alpha + y\sin\alpha = a$ and $x\sin\alpha - y\cos\alpha = b$ is (α is a variable)

a) $2(x^2 + y^2) = a^2 + b^2$ b) $x^2 - y^2 = a^2 - b^2$ c) $x^2 + y^2 = a^2 + b^2$ d) None of these

18. If the two pairs of lines $x^2 - 2mxy - y^2 = 0$ and $x^2 - 2nxy - y^2 = 0$ are such that one of them represents the dissector of the angles between the other, then

a) $mn + 1 = 0$ b) $mn - 1 = 0$ c) $\frac{1}{m} + \frac{1}{n} = 0$ d) $\frac{1}{m} - \frac{1}{n} = 0$

19. The equation of the line passing through the origin and the point of intersection of the lines $\frac{x}{a} + \frac{y}{b} = 1$ and $\frac{x}{b} + \frac{y}{a} = 1$ is

a) $bx - ay = 0$ b) $x + y = 0$ c) $ax - by = 0$ d) $x - y = 0$

20. The equation $4x^2 - 24xy + 11y^2 = 0$ represents

a) Two parallel lines b) Two perpendicular lines

c) Two lines through the origin d) A circle