DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject : MATHS**
Date : **DPP No. : 9**

Topic :- STRAIGHT LINES

1. If the slopes of one of the lines given by $ax^2 + 2hxy + by^2 = 0$ is 5 times the other, then
   a) $5h^2 = 9ab$ b) $5h^2 = ab$ c) $h^2 = ab$ d) $9h^2 = 5ab$
2. Points on the line $x + y = 4$ which are equidistant from the lines $|x| = |y|$, are
   a) $(4, 0),(0, 4)$
   b) $(-4, 0),(0, -4)$
   c) $(4, 0),(-4, 0)$
   d) None of these
3. If 3, 4 are intercepts of a line $L \equiv 0$, then the distance of $L \equiv 0$ from the origin is
   a) 5 units b) 12 units c) $\frac{5}{12}$ unit d) $\frac{12}{5}$ unit
4. If the lines $y = 3x + 1$ and $2y = x + 3$ are equally inclined to the line $y = mx + 4$, $\left(\frac{1}{2} < , m < 3\right)$, then the value of m are
   a) $\frac{1}{2}(1 \pm 5\sqrt{3})$ b) $\frac{1}{7}(1 \pm 5\sqrt{5})$ c) $\frac{1}{7}(1 \pm 5\sqrt{2})$ d) $\frac{1}{7}(1 \pm 2\sqrt{5})$
5. The point of intersection of the lines $\frac{x}{a} + \frac{y}{b} = 1$ and $\frac{x}{b} + \frac{y}{a} = 1$ lies on the line
   a) $x - y = 0$
   b) $(x + y)(a + b) = 2\,ab$
   c) $(lx + my)(a + b) = (l + m)ab$
   d) All of these
6. The equation of the bisector of the acute angle between the line $3x - 4y + 7 = 0$ and $12x + 5y - 2 = 0$ is
   a) $99x - 27y - 81 = 0$ b) $11x - 3y + 9 = 0$ c) $21x + 77y - 101 = 0$ d) $21x + 77y + 101 = 0$
7. The sum of slopes of lines $3x^2 + 5xy - 2y^2 = 0$ is
   a) $-\frac{5}{3}$ b) $\frac{5}{2}$ c) $-\frac{5}{2}$ d) $-\frac{2}{3}$
8. The line $2x - y = 1$ bisects angle between two lines. If equation of one line is $y = x$, then the equation of the other line is
   a) $7x - y - 6 = 0$ b) $x - 2y + 1 = 0$ c) $3x - 2y - 1 = 0$ d) $x - 7y + 6 = 0$
9. The lines $(a + 2b)x + (a - 3b)y = a - b$ for different values of a and b pass through the fixed point whose coordinates are
   a) $\left(\frac{2}{5}, \frac{2}{5}\right)$ b) $\left(\frac{3}{5}, \frac{3}{5}\right)$ c) $\left(\frac{1}{5}, \frac{1}{5}\right)$ d) $\left(\frac{2}{5}, \frac{3}{5}\right)$
10. If the straight line $ax + by + c = 0$ always passes through $(1, -2)$, then a, b, c are
    a) in AP b) in HP c) in GP d) None of these
11. The point moves such that the area of the triangle formed by it with the points $(1, 5)$ and $(3, -7)$ is 21 sq unit. The locus of the point is
    a) $6x + y - 32$ b) $6x - y + 32 = 0$ c) $x + 6y - 32 = 0$ d) $6x - y - 32 = 0$
12. Orthocentre of triangle with vertices $(0, 0)$, $(3, 4)$ and $(4, 0)$ is

a) $(3, 5/4)$ b) $(3, 12)$ c) $(3, 3/4)$ d) $(3, 9)$

13. If one vertex of an equilateral triangle is at $(2, -1)$ and the base is $x + y - 2 = 0$, then the length of each side is

a) $\sqrt{3/2}$ b) $\sqrt{2/3}$ c) $2/3$ d) $3/2$

14. Orthocentre of the triangle formed by the lines $x + y = 1$ and $xy = 0$ is

a) $(0, 0)$b) $(0, 1)$c) $(1, 0)$d) $(-1, 1)$

15. The angle between the line joining origin and intersection points of line $2x + y = 1$ and curve 3 $x^2 + 4yx - 4x + 1 = 0$ is

a) $\pi/2$ b) $\pi/3$ c) $\pi/4$ d) $\pi/6$

16. The coordinate of the foot of perpendicular from $(a, 0)$ on the line $y = mx + \frac{a}{m}$ are

a) $\left(0, \frac{a}{m}\right)$ b) $\left(0, -\frac{a}{m}\right)$ c) $\left(\frac{a}{m}, 0\right)$ d) $\left(-\frac{a}{m}, 0\right)$

17. Coordinate of the foot of the perpendicular drawn from $(0, 0)$ to the line joining ($a\cos\alpha, a\sin\alpha$) and ($a\cos\beta, a\sin\beta$) are

a) $\left(\frac{a}{2}, \frac{b}{2}\right)$ b) $\left[\frac{a}{2}(\cos\alpha + \cos\beta), \frac{a}{2}(\sin\alpha + \sin\beta)\right]$

c) $\left[\cos\frac{\alpha+\beta}{2}, \sin\frac{\alpha+\beta}{2}\right]$ d) $\left(0, \frac{b}{2}\right)$

18. The inclination of the straight line passing through the point $(-3, 6)$ and the mid point of the line joining the points $(4, -5)$ and $(-2, 9)$ is

a) $\frac{\pi}{4}$ b) $\frac{\pi}{6}$ c) $\frac{\pi}{3}$ d) $\frac{3\pi}{4}$

19. The angle between the pair of lines $(x^2 + y^2)\sin^2\alpha = (x\cos\theta - y\sin\theta)^2$ is

a) θ b) 2θ c) α d) 2α

20. The acute angle between the lines joining the origin to the points of intersection of the line $\sqrt{3}$ $x + y = 2$ and the circle $x^2 + y^2 = 4$, is

a) $\pi/2$ b) $\pi/3$ c) $\pi/4$ d) $\pi/6$