DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject : MATHS**
Date : **DPP No. : 1**

Topic :- STRAIGHT LINES

1. The members of the family of lines $(\lambda+\mu)x+(2\lambda+-\mu)y=\lambda+2\,\mu$, where $\lambda\neq 0,\mu\neq 0$, pass through the point
   a) $(3,-1)$ b) $-3,1$ c) $(1,1)$ d) None of these
2. If a line joining two points $A(2,0)$ and $B(3,1)$ is rotated about A in anti-clockwise direction through an angle 15°, then the equation of the line in the new position is
   a) $\sqrt{3}\,x-y=2\sqrt{3}$ b) $\sqrt{3}\,x+y=2\sqrt{3}$ c) $x+\sqrt{3}\,y=2\sqrt{3}$ d) None of these
3. The centroid of the triangle whose three sides are given by the combined equation $(x^2+7xy+2y^2)(y-1)=0$, is
   a) $\left(\frac{2}{3},0\right)$ b) $\left(\frac{7}{3},\frac{2}{3}\right)$ c) $\left(-\frac{7}{3},\frac{2}{3}\right)$ d) None of these
4. The distance of the point $(1,2)$ from the line $x+y+5=0$ measured along the line parallel to $3x-y=7$ is equal to
   a) $4\sqrt{10}$ b) 40 c) $\sqrt{40}$ d) $10\sqrt{2}$
5. The area bounded by the straight lines $y=1$ and $\pm 2\,x+y=2$ is
   a) 1/2 sq. unit b) 1 sq. unit c) 3/2 sq. units d) 2 sq. units
6. The distance between the pair of parallel lines $x^2+4xy+4y^2+3x+6y-4=0$ is
   a) $\sqrt{5}$ b) $\frac{2}{\sqrt{5}}$ c) $\frac{1}{\sqrt{5}}$ d) $\frac{\sqrt{5}}{2}$
7. If the pair of straight lines $xy-x-y+1=0$ and the line $ax+2y-3=0$ are concurrent, then a is equal to
   a) -1 b) 0 c) 3 d) 1
8. Points on the line $x+y=4$ that lie at a unit distance from the line $4x+3y-10=0$, are
   a) $(3,1)$ and $(-7,11)$ b) $(-3,7)$ and $(2,2)$ c) $(-3,7)$ and $(-7,11)$ d) None of these
9. The bisector of the acute angle formed between the lines $4x-3y+7=0$ and $3x-4y+14=0$ has the equation
   a) $x+y+3=0$ b) $x-y-3=0$ c) $x-y+3=0$ d) $3x+y-7=0$
10. If $a\neq b\neq c$, then the equations
    $(b-c)x+(c-a)y+(a-b)=0$
    and, $(b^3-c^3)x+(c^3-a^3)y+(a^3-b^3)=0$
    will represent the same line, if
    a) $a+b=-c$ b) $c+a=-b$ c) $b+c=-a$ d) $a+b+c=0$
11. The number of points on the line $x+y=4$ which are unit distance apart from the line $2x+2y=5$ is
    a) 0 b) 1 c) 2 d) ∞
12. The ratio in which the line $3x-2y+5=0$ divides the join of $(6,-7)$ and $(-2,3)$, is
    a) 1 :1 b) 7 :37 c) 37 :7 d) None of these
13. The lines $2\,x+y-1=0$, $ax+3\,y-3=0$ and $3x+2\,y-2=0$ are concurrent for

a) All a b) $a = 4$ only c) $-1 \leq a \leq 3$ d) $a > 0$ only

14. If $A(\cos\alpha, \sin\alpha), B(\sin\alpha, -\cos\alpha), C(1,2)$ are the vertices of a ΔABC, then as α varies the locus of its centroid is
    a) $x^2 + y^2 - 2x - 4y + 1 = 0$
    b) $3(x^2 + y^2) - 2x - 4y + 1 = 0$
    c) $x^2 + y^2 - 2x - 4y + 3 = 0$
    d) None of these
15. If (a, a^2) falls inside the angle made by the lines $y = \frac{x}{2}, x > 0$ and $y = 3x, x > 0$, then a belongs to
    a) $(3, \infty)$ b) $\left(\frac{1}{2}, 3\right)$ c) $\left(-3, -\frac{1}{2}\right)$ d) $\left(0, \frac{1}{2}\right)$
16. The pairs of straight lines $ax^2 + 2hxy - ay^2 = 0$ and $hx^2 - 2axy - hy^2 = 0$ are such that
    a) One pair bisects the angle between the other pair
    b) The lines of one pair are equally inclined to the lines of the other pair
    c) The lines of each pair are perpendicular to other pair
    d) All of these
17. If the straight line $ax + by + c = 0$ always passes through $(1, -2)$ then a, b, c are in
    a) AP b) HP c) GP d) None of these
18. If $A(1,1), B(\sqrt{3}+1, 2)$ and $C(\sqrt{3}, \sqrt{3}+2)$ be three vertices of a square, then the diagonal through B is
    a) $y = (\sqrt{3} - 2)x + (3 - \sqrt{3})$
    b) $y = 0$
    c) $y = x$
    d) None of these
19. If the lines $4x + 3y - 1 = 0, x - y + 5 = 0$ and $kx + 5y - 3 = 0$ are concurrent, then k is equal to
    a) 4 b) 5 c) 6 d) 7
20. The slopes of the lines represented by $x^2 + 2hxy + 2y^2 = 0$ are in the ratio 1 : 2, then h equals
    a) $\pm\frac{1}{2}$ b) $\pm\frac{3}{2}$ c) ± 1 d) ± 3