DPP

DAILY PRACTICE PROBLEMS

Class : XIth **Subject : MATHS**

Date : **DPP No. : 10**

Topic :- STRAIGHT LINES

1. If the line $\frac{x}{a}+\frac{y}{b}=1$ moves such that $\frac{1}{a^2}+\frac{1}{b^2}=\frac{1}{c^2}$ where c is a constant, then the locus of the foot of the perpendicular from the origin to the line is

a) Straight line b) Circle c) Parabola d) Ellipse

2. The base BC of $\Delta\, ABC$ is bisected at (p, q) and equation of sides AB and AC are $px+qy=1$ and $qx+py=1$ respectively. Then, the equation of the median through A is

a) $(2pq-1)(px+qy-1)=(p^2+q^2-1)(qx+py-1)$

b) $(qx+qy-1)(qx+py-1)=0$

c) $(px+qy-1)(qx-py-1)=0$

d) None of the above

3. The straight lines $x+y-4=0$, $3\,x+y-4=0$, $x+3\,y-4$ form a triangle which is

a) Isosceles b) Right angled c) Equilateral d) None of these

4. The image of the point (1,3) in the line $x+y-6=0$, is

a) (3,5) b) (5,3) c) $(1,-3)$ d) $(-1,3)$

5. The lines $x\cos\alpha+y\sin\alpha=p_1$ and $x\cos\beta+y\sin\beta=p_2$ will be perpendicular, if

a) $\alpha\pm\beta=\frac{\pi}{2}$ b) $\alpha=\frac{\pi}{2}$ c) $|\alpha-\beta|=\frac{\pi}{2}$ d) $\alpha=\beta$

6. The limiting position of the point of intersection of the lines $3x+4y=1$ and $(1+c)x+3c^2$ $y=2$ as c tends to 1, is

a) $(-5, 4)$ b) $(5,-4)$ c) $(4,-5)$ d) None of these

7. If the lines $ax+ky+10=0$, $bx+(k+1)y+10=0$ and $cx+(k+2)y+10=0$ are concurrent, then

a) a,b,c are in GP b) a,b,c are in HP c) a,b,c are in AP d) $(a+b)^2=c$

8. The distance between the parallel lines $9x^2-6xy+y^2+18x-6y+8=0$, is

a) $\frac{1}{\sqrt{10}}$ b) $\frac{2}{\sqrt{10}}$ c) $\frac{4}{\sqrt{10}}$ d) $\sqrt{10}$

9. If two of the lines given by the equation $ax^3+bx^2y+cxy^2+dy^3=(a\neq 0)$ make complementary angles with x-axis in anticlockwise sense, then

a) $a(a-c)=d(b-d)$ b) $d(a-c)=a(d-b)$ c) $a(a-c)=d(d-b)$ d) None of these

10. The equation of the pair of straight lines parallel to x-axis and touching the circle $x^2+y^2-6x-4y-12=0$ is

a) $y^2-4y-21=0$ b) $y^2+4y-21=0$ c) $y^2-4y+21=0$ d) $y^2+4y+21=0$

11. Let $P=(-1, 0)$, $Q=(0, 0)$ and $R=(3, 3\sqrt{3})$ be three points. The equation of the bisector of the angle PQR is

a) $\sqrt{3}x+y=0$ b) $x+\frac{\sqrt{3}}{2}y=0$ c) $\frac{\sqrt{3}}{2}x+y=0$ d) $x+\sqrt{3}y=0$

12. Two of the lines represented by the equation $ay^4 + bxy^3 + cx^2y^2 + dx^3y + ex^4 = 0$ will be perpendicular, then

a) $(b + d)(ad + be) + (e - a)^2(a + c + e) = 0$ b) $(b + d)(ad + be) + (e + a)^2(a + c + e) = 0$
c) $(b - d)(ad - be) + (e - a)^2(a + b + e) = 0$ d) $(b - d)(ad - be) + (e + a)^2(a + b + c) = 0$

13. If $3x^2 + xy - y^2 - 3x + 6y + k = 0$ represents a pair of lines, then k is equal to

a) 0 b) 9 c) 1 d) -9

14. Let the base of a triangle lie along the line $x = a$ and be of length $2a$. The area of this triangle is a^2 if the vertex lies on the lines

a) $x = -a, x = 2a$ b) $x = 0, x = a$ c) $x = a/2, x = -a$ d) None of these

15. The distance of the point $(-2, 3)$ from the line $x - y = 5$ is

a) $5\sqrt{2}$ b) $2\sqrt{5}$ c) $3\sqrt{5}$ d) $5\sqrt{3}$

16. The angle between the lines in $x^2 - xy - 6y^2 - 7x + 31y - 18 = 0$ is

a) 60° b) 45° c) 30° d) 90°

17. The equation $12x^2 + 7xy + ay^2 + 13x - y + 3 = 0$, represents a pair of perpendicular lines. Then, the value of 'a' is

a) $\frac{7}{2}$ b) -19 c) -12 d) 12

18. If the equation of base of an equilateral triangle is $2x - y = 1$and the vertex is $(-1, 2)$, then the length of the side of the triangle is

a) $\sqrt{\frac{20}{3}}$ b) $\frac{2}{\sqrt{15}}$ c) $\sqrt{\frac{8}{15}}$ d) $\sqrt{\frac{15}{2}}$

19. The number of lines that are parallel to $2x + 6y + 7 = 0$ and have an intercept of length 10 between the coordinate axes, is

a) 1 b) 2 c) 4 d) Infinitely many

20. If $a \neq b \neq c$ and if $ax + by + c = 0$, $bx + cy + a = 0$, $cx + ay + b = 0$ are concurrent, then $2^{a^{2}b^{-1}c^{-1}} \cdot 2^{b^{2}c^{-1}b^{-1}} \cdot 2^{c^{2}a^{-1}b^{-1}}$ is equal to

a) 8 b) 0 c) 2 d) None of these