TOPICS COVERED

STRAIGHT LINES AND PAIR OF STRAIGHT LINES

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1. The points A(0, –1), B(2, 1), C(0, 3), D (–2, 1) are the vertices of a
   (1) square (2) retangle
   (3) parallelogram (4) none of these

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

3. ABCD is a square $A\equiv(1,2)\ B\equiv(3,-4)$. If line CD passes through (3, 8), then mid-point of CD is
   (1) (2, 6) (2) (6, 2)
   (3) (2, 5) (4) $\left(\frac{24}{5},\frac{1}{5}\right)$

4. The area of the triangle formed by the lines $y=ax, x+y-a=0$ and the y - axis is equal to
   (1) $\frac{1}{2|1+a|}$ (2) $\frac{a^2}{|1+a|}$
   (3) $\frac{1}{2}\left|\frac{a}{1+a}\right|$ (4) $\frac{a^2}{2|1+a|}$

5. If P (1, 0), Q(–1, 0) and R (2, 0) are three given points, then the locus of points S satisfying the relation $SQ^2+S^2=2SP^2$ is
   (1) a straight line parallel to x-axis
   (2) a circle through the origin
   (3) circle with centre at the origin
   (4) a straicht line parallel to y-axis

6. The straight lines $7x-2y+10=0$ and $7x+2y-10=0$ forms an isosceles triangle with the line $y = 2$, area of this triangle is equal to
   (1) 15/7 sq. units (2) 10/7 sq. units
   (3) 18/7 sq. units (4) none of these

7. A line passes through (2, 2) and is perpendicular to the line $3x+y=3$, Its y-intercept is
   (1) $\frac{1}{3}$ (2) $\frac{2}{3}$
   (3) 1 (4) $\frac{4}{3}$

8. 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
   (1) $y-3x+9=0, 3y+x-3=0$
   (2) $y+3x+9=0, 3y+x-3=0$
   (3) $y-3x+9=0, 3y-x+3=0$
   (4) $y-3x+3=0, 3y+x+9=0$

9. The equation of the diagonal through origin of the quadrilateral formed by the lines $x=0, y=0, x+y-1=0$ and $6x+y-3=0$ is
   (1) $4x-3y=0$ (2) $3x-2y=0$
   (3) $x=y$ (4) $x+y=0$

10. The equation of the base of an equilateral triangle is $x+y=2$ and the vertex is $(2,-1)$ .Length of its side is
    (1) $\sqrt{\frac{1}{2}}$ (2) $\sqrt{\frac{3}{2}}$
    (3) $\sqrt{\frac{2}{3}}$ (4) $\sqrt{2}$

11. If $x-2y+4=0$ *and* $2x+y-5=0$ are the sides of a isoceles triangle having area 10 sq.units .Equations of third side is
    (1) $x+3y=19$ (2) $3x-y-11=0$
    (3) $x-3y=19$ (4) $3x-y+15=0$

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12. A line is such that its segments between the straight lines $5x-y=4$ *and* $3x+4y-4=0$ is bisected at the point (1,5)Its equation is:
(1) $23x-7y+6=0$ (2) $7x+4y+3=0$
(3) $83x-35y+92=0$ (4)None of these

13. A straight line through the origin O meets the parallel lines $4x+2y=9$ *and* $2x+y+6=0$ at the pointsP and Q respectively.Then,the point O divides the segment PQ in the ratio :
(1) 1:2 (2)3:4
(3) 2:1 (4)4:3

14. If x_1,x_2,x_3,as well as y_1,y_2,y_3 are in G.P.with the same common ratio then , the points $(x_1,y_1),(x_2,y_2),(x_3,y_3)$:
(1) lie in a straight line (2) lie on ellipse
(3) lie on a circle
(4) are vertises of triangle

15. If P(1,2), Q(4,6), R(5,7) and S(a,b) are the vertises of a parallelogram PQRS, then :
(1) $a=2,b=4$ (2) $a=3,b=4$
(3) $a=2,b=3$ (4) $a=3,b=5$

16. The diagonals of a parallelogram PQRS ,are along the lines $x+3y=4$ *and* $6x-2y=7$,then PQRS must be a :
(1) rectangle (2) square
(3) cyclic quadrilateral
(4) rhombus

17. The equation of a equally inclined to the axes and equidistant from the points (1,-2) and (3,4) is ;
(1) $x+y+1=0$ (2) $x-y+1=0$
(3) $x-y-1=0$ (4) $x+y-1=0$

18. the equation of a straight line in parametric form is given by :
(1) $(x-x_1)r\cos\theta=(y-y_1)\sin\theta$
(2) $\frac{(x-x_1)}{\cos\theta}=\frac{(y-y_1)}{\sin\theta}=r$
(3) $(x-x_1)\cos\theta=(y-y_1)\sin\theta=r$
(4) none of these

19. The area of the pentagon whose vertises are (4,1) (3.6) , (-5,1) ,(-3,-3) and (-3,0) is :
(1) 30 $unit^2$ (2) 60 $unit^2$
(3) 120 $unit^2$ (4) none of these

20. The points $(\alpha,\beta),(\gamma,\delta),(\alpha,\delta),$ *and* (γ,β) taken in order ,where $\alpha,\beta,\gamma,\delta$ are differential real numbers ,are :
(1) collinear (2)vertices of square
(3) vertices of Rhombus
(4) concyclic

21. The incentre of the triangle with the vertices $(1,\sqrt{3}),(0,0)$ *and* $(2,0)$ *is* :
(1) $\left(1,\frac{\sqrt{3}}{2}\right)$ (2) $\left(\frac{2}{3},\frac{1}{\sqrt{3}}\right)$
(3) $\left(\frac{2}{3},\frac{\sqrt{3}}{2}\right)$ (4) $\left(1,\frac{1}{\sqrt{3}}\right)$

22. A pair of straight lines drawn thrown the origin form with the line $2x+3y=6$ an isocelles right angled triangle ,then the lines and the area of the triangle thus formed is :
(1) $x-5y=0,5x+y=0;\Delta=\frac{36}{13}$
(2) $3x-y=0,x+3y=0;\Delta=\frac{12}{17}$
(3) $5x-y=0,x+5y=0;\Delta=\frac{13}{5}$
(4) none of these

23. Equation of the bisector of obtuse angle between the lines $3x-4y+7=0,$ *and* $12x+5y-2=0$ is :
(1) $11x+3y-9=0$ (2) $11x-3y+9=0$
(3) $21x-77y+101=0$
(4) $21x+77y-101=0$

24. The line L has intercepts a,b on the coordinate axes . When keeping the origin fixed , the coordinate axes are rotated through a fixed same angle , then the same line has intercepts p and q on the rotated axes .Then :

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(1) $a^2+b^2=p^2+q^2$ (2) $a^2+p^2=b^2+q^2$

(3) $\frac{1}{a^2}+\frac{1}{b^2}=\frac{1}{p^2}+\frac{1}{q^2}$

(4) $\frac{1}{a^2}+\frac{1}{p^2}=\frac{1}{b^2}+\frac{1}{q^2}$

25. Given four lines with equation $x+2y-3=0, 3x+4y-7=0, 2x+3y-4$ $4=0 and, 4x+5y-6=0,$ then :
(1) they are all concorrent
(2) they are sides of a quadrillateral
(3) both (4) none of the above

26. A line is drawn perpendicular to the line $y=5x$, meeting the coordinate axes atA and B If the area of the triangle OAB is 10 sq. units where 'O' is origin , then equation is :
(1) $x+5y=10$ (2) $x-5y=10$
(3) $x+4y=10$ (4) $x-4y=10$

27. The equation of the bisector of acute angle between the lines $3x-4y+7=0$ and $12x+5y-2=0$ is :
(1) $21x+77y-101=0$
(2) $11x+3y+20=0$
(3) $21x-7y+3=0$
(4) $11x-3y+9=0$

28. The equation of the line which bisects the obtuse angle between the line $x-2y+4=0$ and $4x-3y+2=0$ is:
(1) $\left(4-\sqrt{5}\right)x-\left(3-2\sqrt{5}\right)y+\left(2-4\sqrt{5}\right)=0$
(2) $\left(3-2\sqrt{5}\right)x-\left(4-\sqrt{5}\right)y+\left(2-4\sqrt{5}\right)=0$
(3) $\left(4+2\sqrt{5}\right)x-\left(3+2\sqrt{5}\right)y+\left(2+4\sqrt{5}\right)=0$
(4) none of these

29. The vertices of a triangle ABC are $(1,1),(4,-2)$ and $(5,5)$ respectively .The equation of perpendicular dropped from C to the internal bisector of A is:
(1) $y-5=0$ (2) $x-5=0$
(3) 2x+3y-7=0 (4)none of these

30. Let PS be the median of the triangle with the vertices $P(2,2), Q(6,-1)$ and $R(7,3)$. The equation of the line passing through (1,-1) and parallel to PS is :
(1) $2x-9y-7=0$ (2) $2x-9y-11=0$
(3) $2x+9y+7=0$ (4) $2x+9y-11=0$

31. If the vertices P,Q,R of a triangle PQR are rational points ,which of the following point(s) of the triangle PQR is not always rational ?
(1) centroid (2) incentre
(3) circumcentre (4) orthocentre

32. In an isocelles triangle ABC,the coordinates of the points B andC on the base BC are respectively (2,1) ,(1,2).If the equqtion of the line AB is $y=\frac{1}{2}x$,then the equation of the line AC is :
(1) $2y=x+3$ (2) $y=2x$
(3) $y=\frac{1}{2}(x-1)$ (4) $y=x-1$

33. The area of the triangle formed by joining the origin to the points of intersection of the line $\sqrt{5}x+2y=3\sqrt{5}$ and circle $x^2+y^2=10$ is :
(1) 6 sq. units (2) 5 sq.units
(3) 3 sq.units (4) 4 sq.units

34. The area enclosed within the curve $|x|+|y|=1$ is :
(1) 2sq.units (2) 4sq.units
(3) 6sq.units (4) none of these

35. The coordinates of foot of prependiculer drawn from the point (2,4) on the line $x+y=1$ are :
(1) $\left(-\frac{1}{2},\frac{3}{2}\right)$ (2) $\left(\frac{1}{2},\frac{3}{2}\right)$
(3) $\left(\frac{3}{2},-\frac{1}{2}\right)$ (4) $\left(-\frac{1}{2},-\frac{3}{2}\right)$

36. The two points on the line $x+y=4$ that lie at a unit distance from the line $4x+3y=10$ are :

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(1) $(-3,1),(7,11)$ (2) $(3,1),(-7,11)$

(3) $(3,1),(7,11)$ (4) none of these

37. If two vertices of an equillateral triangle have integral coordinate , then the third vertex will have :
(1) integral coordinates
(2) coordinates which are rational
(3) atleast one coordinate irrational
(4) nothing can be said

38. Equation of the straight line making equal angles with the straight lines $x+y+1=0$ *and* $2x+3y=1$ and passing through the point (1,2) may be given as :

(1) $\sqrt{13}(x+y-3)=\pm\sqrt{2}(2x+3y-8)$

(2) $\sqrt{13}(x+y+1)=\pm\sqrt{2}(2x+3y+6)$

(3) $\sqrt{13}(x+y+5)=\pm\sqrt{2}(2x+3y+9)$

(4) none of these

39. A variable line drawn through the point (1,3) meets the x- axis at A and y - axis at B.If the rectangle OAPB is completed , where 'O ' is the origin , then locus of 'P' is :

(1) $\frac{1}{y}+\frac{3}{x}=1$ (2) $\frac{1}{x}+\frac{3}{y}=1$

(3) $3x+y=1$ (4) $x+3y=1$

40. The point (4,1) undergoes the following three transformations successively :
(i) reflection about the line $y=x$
(ii) transformation through the a distance 2 units along the positive direction of x -axis
(iii) rotation through an angle of $\frac{\pi}{4}$ about the origin in the anti clock wise direction

The final position of the points given by the coordinates

(1) $\left(\frac{1}{\sqrt{2}},\frac{7}{\sqrt{2}}\right)$ (2) $\left(-2,7\sqrt{2}\right)$

(3) $\left(-\frac{1}{\sqrt{2}},\frac{7}{\sqrt{2}}\right)$ (4) $\left(\sqrt{2},7\sqrt{2}\right)$

41. The equation of the lines through the points $(2,3)$ and making an intercept of length 2 units between the lines $y+2x=3$ and $y+2x=5$, are :

(1) $x+3=0, 3x+4y=12$

(2) $y-2=0, 4x-3y=6$

(3) $x-2=0, 3x+4y=18$

(4) none of these

42. ABC is a right angled isocelles triangle , right angled at A (2,1) .If the equation of side BC is $2x+y=3$, then the combined equation of lines AB and AC is :

(1) $3x^2-3y^2+8xy+20x+10y+25=0$

(2) $3x^2-3y^2+8xy-20x-10y+25=0$

(3) $3x^2-3y^2+8xy+10x+15y+20=0$

(4) none of the above

43. A rectangle ABCD has its side AB parallel to line $y=x$ and vertices A,B and D lie on $y=1, x=2$ *and* $x=-2$ respectively . Locus of vertex 'C 'is :

(1) $x=5$ (2) $x-y=5$

(3) $y=5$ (4) $x+y=5$

44. If the sum of the distances of a point from two perpendicular lines in a plane is 1, then its locus is :
(1) square (2) circle
(3) straight line (4) two intersecting lines

45. Let P (-1, 0) ,Q (0, 0) and R $\left(3,3\sqrt{3}\right)$ be three points . Then ,the equation of the bisector of the angle PQR is :

(1) $\frac{\sqrt{3}}{2}x+y=0$ (2) $x-\sqrt{3}y=0$

(3) $\sqrt{3}x+y=0$ (4) $x+\frac{\sqrt{3}}{2}y=0$

46. Area of the parallelogram formed by the lines $y=mx, y=mx+1, y=nx, y=nx+1$ equals:

(1) $\frac{|m+n|}{(m-n)^2}$ (2) $\frac{2}{|m+n|}$

(3) $\frac{1}{|m+n|}$ (4) $\frac{1}{|m-n|}$

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47. The angle between a pair of tangents drawn from a point P to the circle $x^2+y^2+4x-6y+9\sin^2\alpha \;\; +13\cos^2\alpha=0$ is 2α. The equation of the locus of the point P is

(1) $x^2+y^2+4x-6y+4=0$

(2) $x^2+y^2+4x-6y-9=0$

(3) $x^2+y^2+4x-6y-4=0$

(4) $x^2+y^2+4x-6y+9=0$

48. Let g(x) be a function defined in (-1,1) .If the area of the equillateral triangle with two of its vertices at(0,0) and $\{x, g(x)\}$ is $\frac{\sqrt{3}}{4}$,then the function g(x) is:

(1) $g(x)=\pm\sqrt{1+x^2}$ (2) $g(x)=\sqrt{1-x^2}$

(3) $g(x)=-\sqrt{1+x^2}$ (4) none of these

49. The equation

$$\sqrt{(x^2+4y^2-4xy+4)}+x-2y=1$$

represents a/an :

(1) straight line (2) ellipse

(3) circle (4) parabola

50. A light ray coming along the line $3x+4y=5$,gets reflected from the line $ax+by=1$ *and goes* along the line $5x-12y=10$, then :

(1) $a=\frac{64}{115}, b=\frac{112}{15}$ (2) $a=\frac{14}{15}, b=-\frac{8}{115}$

(3) $a=\frac{64}{115}, b=-\frac{8}{115}$ (4) $a=\frac{64}{15}, b=-\frac{14}{15}$

51. The area of a rhombus is 10 sq . units .It's diagionals intersect at (0,0) .If one vertex of rhombus is (3,4) ,then one of other vertex is :

(1) $\left(\frac{4}{5},-\frac{3}{5}\right)$ (2) $\left(\frac{4}{5},\frac{3}{5}\right)$

(3) $\left(\frac{3}{5},\frac{4}{5}\right)$ (4) none of these

52. The centroid of an equillateral triangle is (0,0) .If two vertices of the triangle lie on $x+y=2\sqrt{2}$,then one of them will have the coordinates as :

(1) $(\sqrt{2}+\sqrt{6}, \sqrt{2}-\sqrt{6})$

(2) $(\sqrt{2}+\sqrt{3}, \sqrt{2}-\sqrt{3})$

(3) $(\sqrt{2}+\sqrt{5}, \sqrt{2}-\sqrt{5})$

(4) none of these

53. The straight line making an angle 45°with x-axis and passing through the point P(1,2) intersects the straight line $x-2y+4=0$ at a point Q, *then* th distance PQ equal to :

(1) $\frac{1}{\sqrt{2}}$ (2) $\frac{1}{2}$

(3) $\sqrt{2}$ (4) 2

54. The lines $ax+by+c=0$,$bx+cy+a=0$ and $cx+ay+b=0$ are concurrent only when :

(1) $a^2+b^2+c^2=2abc$

(2) $a^3+b^3+c^3=3abc$

(3) $a+b+c=3abc$ (4) none of these

55. The pair of points which lie on the same side of the straight line $3x-8y-7=0$ *is*:

(1) $(0,-1);(0,0)$ (2) $(24,-3);(1,1)$

(3) $(-1,-1);(3,7)$ (4) $(0,1);(3,0)$

56. Equation of bisectors of lines $3x-4y+7=0$ *is*:

(1) $21x-77y-101=0; 11x-3y+9=0$

(2) $11x-6y+111=0; 22x-13y+104=0$

(3) $15x-9y+67=0; 15x+4y+33=0$

(4) none of these

57. Consider a family of straight lines $(x+y)+\lambda(2x-y+1)=0$. Equation of the straight line belonging to this family that is farthest from (1,-3) is :

(1) $13y+6x=7$ (2) $15y+6x=7$

(3) $13y-6x=7$ (4) $15y-6x=7$

58. The sides of a rectangle are $x=0, y=0, x=4, y=3$.*The* equation of line

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having slope 1/2 that divides the rectangle into two equal halves is :

(1) $2y = x+1$ (2) $2x = y+1$

(3) $2y + x = +1$ (4) $2x + y = +1$

59. Let $A=(1,2), B=(3,4)$ and let C=(x,y) be a point such that $(x-1)(x-3)+(y-2)(y-4)=0$. If ar(ΔABC) =1, Then max.no.of positions of C in the *xy*-plane is :

(1) 2 (2) 4

(3) 8 (4) none of these

60. If a vertex of an equillateral triangle is origin and the side opposite has its equation $x + y = 1$,then the orthocentreof the triangle is:

(1) $\left(\frac{1}{3},\frac{1}{3}\right)$ (2) $\left(\frac{\sqrt{2}}{3},\frac{\sqrt{2}}{3}\right)$

(3) $\left(\frac{2}{3},\frac{2}{3}\right)$ (4) none of these

61. ABC is an equillateral triangle such that the vertices B and C lie on two parallel lines at a distance 6 .IF A lies between the parallel lines and at a distance 4 units from one of them then the length of the side of the equillateral triangle is :

(1) 8 (2) $\sqrt{\frac{88}{3}}$

(3) $4\frac{\sqrt{7}}{\sqrt{3}}$ (4) none of these

62. If *a,b,c are any three* terms of an A.P. ,then the line $ax + by + c = 0$:

(1) has a fixed direction

(2) always passes through a fixed point

(3) always cuts intercepts on the axes such that their sum is zero

(4) Forms a triangle with the axes whose area is constant

63. A family of lines is given by $(1+2\lambda)x+(1-\lambda)y+\lambda=0, \lambda$ being the parametre .The line belonging to this family at the maximum distance from the point (1,4) is :

(1) $4x - y + 1 = 0$ (2) $33x + 12y + 7 = 0$

(3) $12x + 33y = 7$ (4) none of these

64. The range of values of the ordinate of a point moving on the line x=1,and always remaining in the interior of the triangle formed by the lines $y = x$, x-axis and $x + y = 4$ is :

(1) (0,1) (2) [0,1]

(3) [0,4] (4) none of these

65. A variable line through the points (*a*,*b*) cuts the axis of reference at *A*,*B* respectively .The lines through Aand B parallel to the *y*-axis and *x*- axis respectively meet at Phas the equation :

(1) $\frac{x}{a}+\frac{y}{b}=1$ (2) $\frac{x}{b}+\frac{y}{a}=1$

(3) $\frac{a}{x}+\frac{b}{y}=1$ (4) $\frac{b}{x}+\frac{a}{y}=1$

66. 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 on the line is :

(1) a parabola (2) a circle

(3) an ellipse (4) none of these

67. If a line segment AM =a moves in the *xy* plane remaining parallel to OX ,so that left end point A slides along the circle $x^2 + y^2 = a^2$, then the locus of M is :

(1) $x^2 + y^2 = 2a^2$, (2) $x^2 + y^2 = 2ax$

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

(4) $x^2 + y^2 - 2ax - 2ay = 0$

68. Equations

$(b-c)x+(c-a)y+(a-b)=0$ *and*

$(b^3-c^3)x+(c^3-a^3)y+(a^3-b^3)=0$

(a,b,c are not all equal) will not represent same line if :

(1) $b = c$ (2) $a = c$

(3) $a + c = 0$ (4) $a + b + c = 0$

69. A=(-4,0), B=(4,0),M,N are variable points on *y*

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axis such that M lies below N and MN =4.If the line joining AM and BN intersect at P,then locus of P is :

(1) $2xy+16+x^2=0$ (2) $2xy-16+x^2=0$

(3) $2xy-16-x^2=0$ (4) $2xy+16-x^2=0$

70. Family of lines $\lambda x+3y-6=0$ (λ is a real parametre) intersect the lines $x-2y+3=0$ *and* $x-y+1=0$ in P and Q,then locus of the middle point ofPQ is :

(1) $4x+2y=1$ (2) $x+y=2$

(3) $2x-2y=0$ (4) $4x+3y=4$

71. The lines $x+2y+3=0$, $x+2y-7=0$ *and* $2x-y-4=0$ are the sides of a square .Equation of the remaining side of the square is :

(1) $2x-y-14=0$ (2) $2x-y+8=0$

(3) $2x-y+8=0$ (4) $2x-y-6=0$

72. A line throughA(–5, –4)meets the lines $x+3y+2=0$, $2x+y+4=0$ and $x-y-5=0$ at B,C and D respectively .If $\left(\frac{15}{AB}\right)^2+\left(\frac{10}{AC}\right)^2=\left(\frac{6}{AD}\right)^2$, then the equation of the line is :

(1) $2x+3y+22=0$ (2) $5x-4y+7=0$

(3) $3x-2y-10=0$ (4) none of these

73. The line which is parallel to x-axis and crosses the curve $y=\sqrt{x}$ at an angle 45^0,is :

(1) $x=\frac{1}{2}$ (2) $y=\frac{1}{4}$

(3) $y=\frac{1}{2}$ (4) $y=1$

74. The area bounded by the curves $y=|x|-1$ and $y=-|x|+1$ is:

(1)1*sq.units* (2) 2*sq.units*

(3) $2\sqrt{2}$*sq.units* (4) 4*sq.units*

75. Consider the family of lines $5x+3y-2+\lambda_1(3x-y-4)=0$ and $x-y+1+\lambda_2(2x-y-2)=0$.Equation of a straight line that belongs to both families is :

(1) $25x-62y+86=0$

(2) $62x-25y+86=0$

(3) $25x-62y=86$ (4) $5x-2y-7=0$

76. If a point $(1+\cos\theta,\sin\theta)$ lies between the region corresponding to the acute angle between the lines $3y=x$ *and* $6y=x$, then :

(1) $\theta\in R$ (2) $\theta\in R\sim n\pi, n\in I$

(3) $\theta\in R\sim(2n+1)\frac{\pi}{2}, n\in I$

(4) none of these

77. A rectangle ABCD A=(0,0), B=(4,0),C=(4,2), D=(0,2) undergoes the following transformation successively

(i) $f_1(x,y)\to(y,x)$

(ii) $f_2(x,y)\to(x+3y,y)$

(iii) $f_3(x,y)\to\left(\frac{x-y}{2},\frac{x+y}{2}\right)$

then the final figure will be :

(1) a square (2) a rhombus

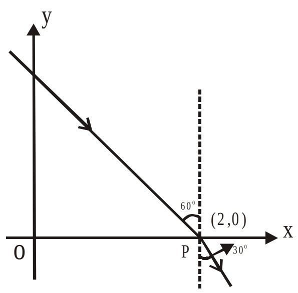
(3) a rectangle (4) a parallelogram

78. The area bounded by the curves $x+2|y|=1$ and x=0 is :

(1) $\frac{1}{3}$ (2) $\frac{1}{2}$

(3) 2 (4) 3

79. In the adjasent figure combined equation of the incident ray and the refracted ray is :



(1) $(x-2)^2-y^2+\frac{4}{\sqrt{3}}(x-2)y=0$

(2) $(x-2)^2+y^2-\frac{4}{\sqrt{3}}(x-2)y=0$

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(3) $(x-2)^2+y^2+\frac{4}{\sqrt{3}}(x-2)y=0$

(4) none of the above

80. If the points $(-2,0)$, $\left(-1,\frac{1}{\sqrt{3}}\right)$ and (cos $(\cos\theta,\sin\theta)$ collinear then the number of values of $\theta=[0,2\pi]$ *is* :

(1) 0 (2) 1

(3) 2 (4) infinite

81. If A$\left(\frac{1+t}{\sqrt{2}},\frac{2+t}{\sqrt{2}}\right)$ be any pointon a line ,then the range of values of t for which the point P lies between the parallel lines $x+2y=1$ and $2x+4y=15$ is :

(1) $-\frac{4\sqrt{2}}{3}<t<\frac{5\sqrt{2}}{6}$ (2) $0<t<\frac{5\sqrt{2}}{6}$

(3) $-\frac{4\sqrt{2}}{5}<t<0$ (4) infinite

82. If a $A\left(\sin A,\frac{1}{\sqrt{2}}\right)$ *and* $B\left(\frac{1}{\sqrt{2}},\cos\alpha\right)$, $-\pi\le\alpha\le\pi$ are the two points on the same side of the line $x-y=0$, then a belongs to the interval :

(1) $\left(\frac{-\pi}{4},\frac{\pi}{4}\right)\cup\left(\frac{\pi}{4},\frac{3\pi}{4}\right)$ (2) $\left(\frac{-\pi}{4},\frac{\pi}{4}\right)$

(3) $\left(\frac{\pi}{4},\frac{3\pi}{4}\right)$ (4) none of these

83. Two lines $2x-3y=1$ *and* $x+2y+3=0$ divide the *x-y* plane in four compartments which are named as shown in the figure . Consider the locations of the points $(2,-1)(3,2)$ *and* $(-1,-2)$. We get :

(1) $(2,-1)\in IV$ (2) $(3,2)\in III$

(3) $(-2,-1)\in II$ (4) none of these

84. If the straight lines $ax+by+c=0$ *and* $x\cos\alpha+y\sin\alpha=c$ enclose an angle $\frac{\pi}{4}$ between them and meet the straight line $x\sin\alpha-y\cos\alpha=0$ in the same point than a^2+b^2 is :

(1) c^2 (2) 2

(3) $2c^2$ (4) none of these

85. The acute angle between the medians drawn from the acute angles of a right angled isosceles triangle is :

(1) $\cos^{-1}\left(\frac{2}{3}\right)$ (2) $\cos^{-1}\left(\frac{3}{4}\right)$

(3) $\cos^{-1}\left(\frac{4}{5}\right)$ (4) $\cos^{-1}\left(\frac{5}{6}\right)$

86. θ_1 *and* θ_2 are the inclination of lines L_1 *and* L_2 with *x*-axis. If L_1 *and* L_2 pass through $p(x_1,y_1)$,then equation of one of the angle bisector of these lines is :

(1) $\frac{x-x_1}{\cos\left(\frac{\theta_1-\theta_2}{2}\right)}=\frac{y-y1}{\sin\left(\frac{\theta_1-\theta_2}{2}\right)}$

(2) $\frac{x-x_1}{-\sin\left(\frac{\theta_1-\theta_2}{2}\right)}=\frac{y-y_1}{\cos\left(\frac{\theta_1-\theta_2}{2}\right)}$

(3) $\frac{x-x_1}{\sin\left(\frac{\theta_1+\theta_2}{2}\right)}=\frac{y-y_1}{\cos\left(\frac{\theta_1+\theta_2}{2}\right)}$

(4) $\frac{x-x_1}{-\sin\left(\frac{\theta_1+\theta_2}{2}\right)}=\frac{y-y_1}{\cos\left(\frac{\theta_1+\theta_2}{2}\right)}$

87. If the straight lines $ax^2+by^2+2hxy+2gx+2fy+c=0$ intersect on *x*-axis ,then :

(1) *ag* = *fh* (2) *ah* = *fg*

(3) *af* = *hg* (4) none of these

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88. If a pair of lines $x^2-2pxy-y^2=0$ *and* $x^2-2qxy-y^2=0$ is such that each pair bisects the angle between the other pair ,then :
(1) $pq=-1$ (2) $pq=1$
(3) $\frac{1}{p}+\frac{1}{q}=0$ (4) $\frac{1}{p}-\frac{1}{q}=0$

89. the straight lines given by the equations $12x^2+7xy-12y^2=0$ and $12x^2+7xy-12y^2-x+7y-1=0$ lie along the sides of a :
(1) a square (2) a parallelogram
(3) a rectangle (4) rhombus

90. Which of the following pairs of straight line intersect at right angles ?
(1) $2x^2=y(x+2y)$
(2) $(x+y)^2=x(y+3x)$
(3) $(x+y)^2=x(y+3x)$
(4) $y=\mp 2x$

91. If one of the lies of the pair $ax^2+2hxy+by^2=0$ bisects the angle between positive directions of the axes, then *a,b ,h* satisfy the relation
(1) $a+b=2|h|$ (2) $a+b=-2\ h$
(3) $a-b=2|h|$ (4) $(a-b)^2=4h^2$

92. Area of the triangle formed by the lines $y^2-9xy+18x^2=0$ and $y=9$ is :
(1) $\frac{27}{4}$ *sq. units* (2) 0*sq. units*
(3) $\frac{9}{3}$ *sq. units* (4) 27*sq. units*

93. The area of the triangle formed by the lines $4x^2-9xy-9y^2=0$ *and* $x=2$ is equal to :
(1) $\frac{20}{3}$ *sq.units* (2) 3 *sq.units*
(3) $\frac{10}{3}$ *sq.units* (4) 2 *sq.units*

94. The value of λ for which the equation $6x^2+11xy-10y^2+x+31y+\lambda=0$ represents apair of straight lines, is :
(1) – 15 (2) 0
(3) 2 (4) none of these

95. The value of λ for which the lines joining the point of intersection of curves C_1 and C_2 to the origin are equally inclined to the axis of *x*.
$C_1:\lambda x^2+3y^2-2\lambda xy+9x=0$ *and*
$C_2:3x^2-4y^2+8xy-3x=0,$ *is* :
(1) $\lambda=\frac{4}{3}$ (2) $\lambda=12$
(3) $\lambda=1$ (4) none of these

96. Family of a lines $x\sec^2\theta+y\tan^2\theta-2=0$, for different real θ, is :
(1) not concurrent
(2) concurrent at (1, 1)
(3) concurrent at (2, –2)
(4) concurrent at (–2 ,2)

97. If the points (a,a^2) *and* $(1,2)$ lie in the same angular region between the lines $3x+4y-1=0$ and $2x+y-3=0$, then :
(1) $a<-3$ *or* $a>1$ (2) $a\in[-3,1]$
(3) $a<\frac{1}{4}$ *or* $a>-1$ (4) non of these

98. The cartesion co-ordinates (x, y) of a point on a curve are given by $x:y:1=t^3:t^2-3:t-1$ where *t* is a parmeter, then the points given by *t* = *a,b,c* are collinear, if :
(1) $abc+3(a+b+c)=ab+bc+ca$
(2) $3abc+2(a+b+c)=ab+bc+ca$
(3) $abc+2(a+b+c)=3(ab+bc+ca)$
(4) none of the abobve

99. If $A(n,n^2)[where\ n\in N]$ is any point in the interior of the quadrilateral formed by the lines

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$x=0, y=0, 3x+y-4=0$ and $4x+y-21=0$, then the possible number of positions of the point A is :
(1) 0 (2) 1
(3) 2 (4) 3

100. If a and b are positive number ($a<b$), then the range of values of K for which a real λ be found such that the equation
$$ax^2+2\lambda xy+by^2+2K(x+y+1)=0$$
represents a pair of straight lines, is :
(1) $a<K^2<b$ (2) $a\le K^2\le b$
(3) $K^2\le a,\ K^2\ge b$ (4) none of these

101. The equation $x^3+y^3=0$ represents :
(1) three real straight lines
(2) one point
(3) one real and two imaginary lines
(4) none of the above

102. If the line $y=\tan\theta x$ cut the curve $x^3+xy^2+2x^2+2y^2+3x+1=0$ at the point A, B and C. If OA, OB, OC are in H.P.,then $\tan\theta$ is equal to :
(1) ±1 (2) 0
(3) 2 (4) -2

103. One bisector of the angle between the lines given by $a(x-1)^2+2h(x-1)y+by^2=0$ is $2x+y-2=0$, then :
(1) $a=2$ (2) $b=-2$
(3) $h=2$ (4) non of these

104. Consider two points $a=(-3,0)$ *and* $B=(0,4)$. A point p on line $2x-3y-12=0$ is such that $|PA-PB|$ is maximum, then p is :
(1) $(-12,-12)$ (2) $(6,0)$
(3) $(0,-4)$ (4) none of these

105. From a common point on the lines $xy-3y-4x+12=0$ mutually perpendicular lines L_1 *and* L_2 are drawn such that they intercept triangles of equal area with coordinate axis. then $|\theta_1+\theta_2|$ equals to :
(1) $\tan^{-1}\left(\frac{48}{7}\right)$ (2) $\tan^{-1}\left(\frac{24}{7}\right)$
(3) $\tan^{-1}\left(\frac{1}{7}\right)$ (4) $\tan^{-1}\left(\frac{2}{7}\right)$

106. Let $0<\alpha<\frac{\pi}{2}$ be a fixed angle. If $P(\cos\theta,\sin\theta)$ and $Q\{\cos(\alpha-\theta),\sin(\alpha-\theta)\}$, then Q is obtained from p by :
(1) clockwise rotation around origin through an angle α
(2) anticlockwise rotation around origin through an angle α
(3) reflection in the line through origin with slope $\tan\alpha$
(4) reflection in the line through origin with slope $\tan\frac{\alpha}{2}$

107. If the straight lines $a_1x+b_1y+c_1=0, a_1x+b_1y+c_2=0$, $a_2x+b_2y+d_1=0$ and $a_1x+b_2y+d_2=0$ are the sides of rhombus, then
(1) $(a_2^2+b_2^2)(c_1-c_2)^2=(a_1^2+b_1^2)(d_1-d_2)^2$
(2) $(a_1^2+b_1^2)|d_1-d_2|=(a_2^2+b_2^2)|c_1-c_2|$
(3) $(a_1^2+b_1^2)(d_1-d_2)^2=(a_2^2+b_2^2)(c_1-c_2)^2$
(4) $(a_1^2+b_1^2)|c_1-c_2|=(a_2^2+b_2^2)|d_1-d_2|$

108. The number of integers values of m for which the x- coordinate of the point intersection of the lines $3x+4y=9$ *and* $y=mx+1$ is also an integer ,is :
(1) 2 (2) 0
(3) 4 (4) 1

109. $A(3,4)B(0,0)$ *and* $C(3,0)$ are the vertices ΔABC. If 'P' is a point inside ΔABC ,such that d(P,BC)$\le$min.{d (P,AB),d(P,AC)},then the

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maximum of d(P,BC)is : (d(P,BC) represents the distance between P and BC)

(1) 1 (2) $\frac{1}{2}$

(3) 2 (4) none of these

110. A line L_1 =0 passing through P(1,2) has equation of its two bisectors with respect to other line $(L_2 = 0)$ as $B_1 \equiv 3x - 4y - 7 = 0$ and $B_2 \equiv 4x + 3y - 2 = 0$ .Then which of the following is true ?

(1) B_1 is the acute angle bisector

(2) B_2 is acute angle bisector

(3) *both* B_1 *and* B_2 (4) nothing can be said

111. A straight line L_1 makes an angle $\tan^{-1}\frac{4}{3}$ with parallel lines

$3x - 4y - 24 = 0$ *and* $3x - 4y - 12 = 0$ .If L_1 makes an intercept of 3 units with these parallel lines , then the equation of L_1 may be given as :

(1) $x = 1$ (2) $y = 1$

(3) $x = 2y + 3$ (4) none of these

112. A ray of light is sent along the line $x + y = 1$, after being reflected from the line $y - x = 1$ *it is again* reflected from the line $y = 0$,then the equation of the line representing the ray after second reflection may be given as :

(1) $x + y = 1$ (2) $x - y = 1$

(3) $y - x = 1$ (4) none of these

113. consider the family of lines $y - y_1 = m(x - x_1)$,in which m is constant and $x_1^2 + y_1^2 = 1$,then all the lines of the family are :

(1) concurrent at origin

(2) normal lines to the curve $x_1^2 + y_1^2 = 2$

(3) tangent lines to the circle $x_1^2 + y_1^2 = 1$

(4) none of these

114. If the distanceany point (x,y) from the origin is defined as d(x,y)=max.{|x|,|y|},then the locus of the point (x,y),where *d*(*x*,*y*)=1 is :

(1) a circle (2) a square

(3) a triangle (4) none of these

115. For the points P=($P(x_1, y_1)$ *and* $Q = (x_2, y_2)$ of the coordinates plane , a new distance *d*(P,Q) is defined by

$d(P,Q) = |x_1 - x_2| + |y_1 - y_2|$. Let

O=(0,0) and A=(3,2) .Then the set of points in the first quadrant which are equidistant (with respect to the new distance) from *0* and A :

(1) consists only one point

(2) consists of the union of a line segment of finite length and an infinite ray

(3) consists of the union of line segments of a convex polygon

(4) none of the above

116. Let $A = (a,b)$ *and* $B = (c,d)$ where $c > a > 0$, *and* $d > b > 0$. Then point C on the x-axis such that AC+BC is the minimum, is :

(1) $\frac{bc - ad}{b - d}$ (2) $\frac{ac + bd}{b + d}$

(3) $\frac{ac - bd}{b - d}$ (4) $\frac{ad + bc}{b + d}$

117. Let $d(P, OA) \le \min.$

$\{d(P, AB), d(P, BC), d(P, OC)\}$ where *d* denotes the distence from the point to the corresponding line and S be the region consisting of all those points P inside the rectangle OABC such that $O = (0,0), A = (3,0), B = (3,2)$ and $C = (0,2)$, which satisfy the above relation, then area of the region S is

(1) $2\,sq.units$ (2) $3\,sq.units$

(3) $4\,sq.units$ (4) non of these

118. Two of the lines represented by the equation $ax^4 + bx^3y + cx^2y^2 + dxy^3 + ay^4 = 0$ will bisent the angles between the other two, if :

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(1) $c+6a=0$ *and* $ab+d=0$

(2) $b+d=0$ *and* $a+c=0$

(3) $c+6a=0$ *and* $b+d=0$

(4) none of the above

119. If $ax^2+2hxy+by^2+2gx+2fy+c=0$ represents a pair of straight lines, equidistant from the origin, then :

(1) $f^4=c(bf-ag)$

(2) $f^4-g^4=c(bf^2-ag^2)$

(3) $f^4+g^4=c(bf^2+ag^2)$

(4) none of these

120. Family of lines $x(a+b)+y=1$ where $a$and b are roots of the equation $x^3-3x^2+x+1=0$ and $[a+b]=1$(where [.] denotes the greatest integer function)such that it intercepts a triangle of area A with coordinate axes, then A_{max} is :

(1) 1 *sq. units* (2) $\frac{1}{2}$ *sq.units*

(3) 2 *sq. units* (4) $\frac{1}{4}$ *sq.units*

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ENTRANCE CORNER

1. Area of the triangle formesd by the lines $x+y=3$ and angle bisector of the pair of straight lines $x^2-y^2+2y=1$ is :

(1) 2 sq units (2) 4 sq.units

(3) 6 q. units (4) 8 sq.units

2. If the equation of locus of a points (a_1,b_1) *and* (a_2,b_2) is $(a_1-a_2)x+(b_1-b_2)y+c=0$,Then the value of 'c' is :

(1) $\frac{1}{2}(a_2^2+b_2^2-a_1^2-b_1^2)$

(2) $\frac{1}{2}(a_1^2-b_2^2-a_2^2+b_1^2)$

(3) $\frac{1}{2}(a_2^2+b_2^2+a_1^2+b_1^2)$

(4) $\sqrt{(a_1^2-b_2^2+a_2^2+b_1^2)}$

3. The number of integral points (integral point means both coordinates should be integers) exatly in the interior of the triangle with the vertices $(0,0),(0,21)$ *and* $(21,0)$ is :

(1) 133 (2) 190

(3) 233 (4) 105

4. Orthocentre of triangle with the vertices $(0,0),(3,4)$ *and* $(4,0)$ is :

(1) $\left(3,\frac{5}{4}\right)$ (2) $(3,12)$

(3) $\left(3,\frac{3}{4}\right)$ (4) $(3,9)$

5. The area of the parallelogram formed by the lines

$y=mx, y=mx+1, y=nx$ *and* $y=nx+1$ equals :

(1) $\frac{|m+n|}{(m-n)^2}$ (2) $\frac{2}{|m+n|}$

(3) $\frac{1}{|m+n|}$ (4) $\frac{1}{|m-n|}$

6. The number of integral values of m for which the *x*- coordinate of intersection of the lines $3x+4y=9$ *and* $y=mx+1$ also an integer is :

(1) 2 (2) 0

(3) 4 (4) 1

7. Let PS be the median of the triangle with vertices P (2,3) ,Q (6,–1) and R(7,3) .The equation of the line passing through (1,–1) and parallel to PS is :

(1) $2x-9y-7=0$ (2) $2x-9y-11=0$

(3) $2x+9y-11=0$ (4) $2x+9y+7=0$

8. 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 :

(1) $(3,\infty)$ (2) $\left(\frac{1}{2},3\right)$

(3) $\left(-3,-\frac{1}{2}\right)$ (4) $\left(0,\frac{1}{2}\right)$

9. A straight line through the point A(3,4), is such that its intercepts between the axes is bisected at A . Its equation is :

(1) $3x-4y+7$ (2) $4x+3y=24$

(3) $3x+4y=25$ (4) $x+y=7$

10. The line parallel to the x-axis passing through the $ax+2by+3b=0$ and $bx-2ay-3a=0$ where (a,b) $\neq$ (0,0) is:

(1) above the *x*-axis at a distance of 2/3 from it

(2) above the *x*-axis at a distance of 3/2 from it

(3) below the *x*-axis at a distance of 2/3 from it

(4) below the *x*-axis at a distance of 3/2 from

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it.

11. If the pair of lines $ax^2+2(a+b)xy+by^2=0$ lie along diameters of a circle and divide the circle into four sector such that the area of one of the sectors is thrice the area of another sector, then :

(1) $3a^2+2ab+3b^2=0$

(2) $3a^2+10ab+3b^2=0$

(3) $3a^2-2ab+3b^2=0$

(4) $3a^2-10ab+3b^2=0$

12. The equation of the straight line passing through the point $(4,3)$ and making intercepts on the co-ordinate axes whose sum is –1, is :

(1) $\frac{x}{2}+\frac{y}{3}=-1$ *and* $\frac{x}{-2}+\frac{y}{1}=-1$

(2) $\frac{x}{2}-\frac{y}{3}=-1$ *and* $\frac{x}{-2}+\frac{y}{1}=-1$

(3) $\frac{x}{2}+\frac{y}{3}=1$ *and* $\frac{x}{-2}+\frac{y}{1}=1$

(4) $\frac{x}{2}-\frac{y}{3}=1$ *and* $\frac{x}{-2}+\frac{y}{1}=1$

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

(1) 1 (2) –1

(3) 3 (4) –3

14. If the sum of the slopes of the lines given by $x^2-2cxy-7y^2=0$ is four times their product, then c has value :

(1) 1 (2) –1

(3) 2 (4) –2

15. If x_1,x_2,x_3 *and* y_1,y_2,y_3 are both in G.P. with the same common ratio, then the points $(x_1,y_1),(x_2,y_2)$ *and* (x_3,y_3):

(1) lie on a straight line

(2) lie on an ellipse

(3) lie on a circle

(4) are vertices of a triangle

16. A square of side *a* lies above the *x*-axis and has one vertex at the origin. The side passing through the origin makes an angle $\alpha\left(0<\alpha<\frac{\pi}{4}\right)$ with the positive direction of *x*-axis . The equation of its diagonal not passing through the origin is :

(1) $y(\cos\alpha-\sin\alpha)-x(\sin\alpha-\cos\alpha)=a$

(2) $y(\cos\alpha+\sin\alpha)-x(\sin\alpha-\cos\alpha)=a$

(3) $y(\cos\alpha+\sin\alpha)+x(\sin\alpha+\cos\alpha)=a$

(4) $y(\cos\alpha+\sin\alpha)+x(\sin\alpha-\cos\alpha)=a$

17. If the pair of lines $ax^2+2hxy+by^2+2gx+2fy+c=0$ intersect on the y-axis, then :

(1) $2fgh=bg^2+ch^2$

(2) $bg^{2\,1}ch^2$

(3) $abc=2fgh$ (4) none of these

18. The point of line srepresented by $3ax^2+5xy+(a^2-2)y^2=0$ *and* perpendicular to each other for :

(1) two values of a (2) $\forall a$

(3) for one value of a (4) for no values of a

19. The straight lines $x+y=0, 3x+y-4=0$ *and* $x+3y-4=0$ form a triangle which is :

(1) right angled (2) equilateral

(3) isosceles (4) none of these

20. The value of '*p*' for which the equation $x^2+pxy+y^2-5x-7y+6=0$ represents a pair of straight lines is :

(1) $\frac{5}{2}$ (2) 5

(3) 2 (4) $\frac{2}{5}$

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21. The equation of a line passing through $(-2,-4)$ and perpendicular to the line $3x-y+5=0$ is :

(1) $3y+x-8=0$ (2) $3x+y+6=0$

(3) $x+3y+14=0$ (4) none of these

22. The equation of the bisectot of the acute angle between the lines $3x-4y+7=0$ *and* $12x+5y-2=0$ is :

(1) $99x-27y-81=0$

(2) $11x-3y+9=0$

(3) $21x+77y-101=0$

(4) $21x+77y+101=0$

23. The equation $y^2-x^2+2x-1=0$ represents:

(1) hyperbola

(2) an ellipse

(3) a pair of straight lines

(4) a rectangular hyperbola

24. The vertex of an equilateral triangle is $(2,-1)$ and the equation of its base is $x+2y=1$. The length of its sides is :

(1) $\frac{4}{\sqrt{15}}$ (2) $\frac{2}{\sqrt{15}}$

(3) $\frac{4}{3\sqrt{3}}$ (4) $\frac{1}{\sqrt{5}}$

25. For what value of 'p' $y^2+xy+px^2-x-2y+p=0$ represents two straight lines :

(1) 2 (2) $\frac{1}{3}$

(3) $\frac{1}{4}$ (4) $\frac{1}{2}$

26. Equation $3x^2+7xy+2y^2+5x+3y+2=0$ represents :

(1) Pair of straight lines(2) ellipse

(3) hyperbola (4) none of these

27. The equation of straight line passing through point of intersection of the straight lines $3x-y+2=0$ and $5x-2y+7=0$ and having infinite slope is :

(1) $x = 2$ (2) $x + y = 3$

(3) $x = 3$ (4) $x = 4$

28. The value of k so that the equation $2x^2+5xy+3y^2+6x+7y+k=0$ represents a pair of straight lines is :

(1) 4 (2) 6

(3) 0 (4) 8

29. The equation $8x^2+8xy+2y^2+26x+13y+15=0$ represents a pair of straight lines . The distence between them is :

(1) $\frac{7}{\sqrt{5}}$ (2) $\frac{7}{2\sqrt{5}}$

(3) $\frac{\sqrt{7}}{5}$ (4) none of these

30. The angle between the pair of lines represented by $2x^2-7xy+3y^2=0$ is :

(1) 60° (2) 45°

(3) $\tan^{-1}\left(\frac{7}{6}\right)$ (4) 30°

31. If the equation $12x^2+7xy-py^2-18x+qy+6=0$ represents apair of perpendicular straight lines , then :

(1) $p=12, q=1$ (2) $p=1, q=12$

(3) $p=-1, q=12$ (4) $p=1, q=-12$

32. The straight lines whose sum of the intercepts on the axis is equal to half of the product of the intercepts ,passes through the point is :

(1) $(1,1)$ (2) (2,2)

(3) (3,3) (4) (4,4)

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33. The distance between the lines $3x+4y=9$ *and* $6x+8y=15$ is :

(1) $\frac{3}{2}$ (2) $\frac{3}{10}$

(3) 6 (4) 0

34. Two points A and B have coordinates (1,1) and (3,–2) respectively.The co-ordinates ofm a points distance $\sqrt{85}$ from B on the line through B perpendicular AB are :

(1) $(4,7)$ (2) (7,4)

(3) (5, 7) (4) (–5, –3)

35. If the straight line *ax+by+c=0* always passes through (1,–2) then *a,b,c* are :

(1) in A.P. (2) in G.P

(3) in H.P. (4) none of these

36. The area of triangle bound by the straight line *ax+by+c=0* ,(a,b,c $\neq 0$) and the co-ordinate axis is :

(1) $\frac{1}{2}\frac{a^2}{|bc|}$ (2) $\frac{1}{2}\frac{c^2}{|ba|}$

(3) $\frac{1}{2}\frac{b^2}{|ca|}$ (4) 0

37. The parallelism condition for two straight lines one of which is specified by the equation *ax+by+c=0* the order being represented parametrically by $x=\alpha t+\beta, y=\gamma t+\delta$ is given by :

(1) $a\gamma-b\alpha=0, \beta=\delta=c=o$

(2) $a\alpha-b\gamma=0, \beta=\delta=o$

(3) $a\alpha+b\gamma=0$ (4) $a\gamma=b\alpha=0$

38. Three straight lines $2x+11y-5=0$ $24x+7y-20=0$ and $4x-3y-2=0$:

(1) form a triangle (2) are only concurrent

(3) are concurrent with one line bisecting the angle between the other two

(4) none of these

39. The two curves $x^3-3xy^2+2=0$ and $3x^2y-y^3-2=0$:

(1) cut at right angles (2) touch each other

(3) cut at an angle $\frac{\pi}{3}$ (4) cut at an angle $\frac{\pi}{4}$

40. A straight line through the point (2,2) intersects the line $\sqrt{3}x+y=0$ and $\sqrt{3}x-y=0$ at the points A,B.The equation of the line AB so that the triangle OAB is equillateral is :

(1) *x*-2 = 0 (2) *y*-2 = 0

(3) *x* + *y* - 4 = 0 (4) none of these

41. Two points *(a,0)* and *(0,b)* are joined by the straight line Another point on the line is :

(1) *(3a,–2b)* (2) (a^2,ab)

(3) $(-3a,2b)$ (4) *(a,b)*

42. The length intercepted by the curve $y^2=4x$ saticifyng $\frac{dy}{dx}=1$ and passing through point *(0,1)* , is given by :

(1) 1 (2) 2

(3) 0 (4) none of these

43. The circum centre of ta triangle formed by the line *xy +2x+ 2y+ 4 = 0* and *x +y +2 = 0 is :*

(1) $(-1,-1)$ (2) $(0,-1)$

(3) $(1,1)$ (4) $(-1,0)$

44. If A and B are two fixed , then the locus of a point which moves in such a way that the angle APB is right angle , is :

(1) circle (2) parabola

(3) ellipse (4) none of these

45. Distance between two parallel lines $y=2x+7$ *and* $y=2x+5$ is :

(1) $\frac{\sqrt{5}}{2}$ units (2) $\frac{2}{5}$ units

(3) $\frac{2}{\sqrt{5}}$ (4) $\frac{1}{\sqrt{5}}$

46. The triangle formed by $x^3-3y^2=0$ and *x=4*

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is :

(1) isocelles (2) equillateral
(3) right angled (4) none of these

47. Orthocentre of the triangle formed by the lines $x + y = 1$ and $xy = 0$ is :
(1) $(0,0)$ (2) $(0,1)$
(3) $(1,0)$ (4) $(-1,1)$

48. A ray of light passing through at point (1,2) is reflected on thwe x-axis is point P and passes through the point (5,8) .Then the absissa of the point P is :
(1) -3 (2) $\frac{13}{3}$
(3) $\frac{13}{5}$ (4) $\frac{13}{4}$

49. The equation $4x^2 - 24xy + 11y^2 = 0$ represents :
(1) two parallel lines
(2) two perpendicular lines
(3) two lines passing through the origin
(4) a circle

50. The equation of bisectors of angles between the lines $|x| = |y|$ are :
(1) $y = \pm x \ and \ x = o$
(2) $x = \frac{1}{2} and \ \ y = \frac{1}{2}$
(3) $y=0$ *and* $x=0$ (4) none of these

51. The distance of the line $2x - 3y = 4$ from the point (1,1) measured parallel to the line $x + y=1$
(1) $\sqrt{2}$ (2) $\frac{5}{\sqrt{2}}$
(3) $\frac{1}{\sqrt{2}}$ (4) 6

52. The locus of the point P (x,y) saticifying the relation $\sqrt{(x-3)^2 + (y-1)^2} + \sqrt{(x+3)^2 + (y-1)^2}$ =6 is :
(1) syraight line (2) pair of straight line
(3) circle (4) ellipse

53. If the angle between the pair of straight line represented $x^2 - 3xy + \lambda y^2 + 3x - 5y + 2 = 0$ is $\tan^{-1}\left(\frac{1}{3}\right)$,where 'λ' is non-negative real number .Then 'λ'is :
(1) 2 (2) 0
(3) 3 (4) 1

54. If the straight line $x+q=0$,$y - 2=0$ and $3x+2y+5 =0$ are concurrent ,then the value of q will be :
(1) 1 (2) 2
(3) 3 (4) 5

55. The lines represented by the equation $x^2 - y^2 - x + 3y - 2 = 0$ are :
(1) $x + y - 1 = 0, x - y + 2 = 0$
(2) $x - y - 2 = 0, x + y + 1 = 0$
(3) $x - y - 2 = 0, x + y + 1 = 0$
(4) $x - y + 1 = 0, x + y - 2 = 0$

56. The centroid of the triangle formed by the pair of straight lines $12x^2 - 20xy + 7y^2 = 0$ and the line $2x - 3y + 4 = 0$ is :
(1) $\left(-\frac{7}{3}, \frac{7}{3}\right)$ (2) $\left(-\frac{8}{3}, \frac{8}{3}\right)$
(3) $\left(\frac{8}{3}, \frac{8}{3}\right)$ (4) $\left(\frac{4}{3}, \frac{4}{3}\right)$

57. The transformed equation of $x^2 + 6xy + 8y^2 = 10$ when the axes are rotated through an angle $\frac{\pi}{4}$ is :
(1) $15x^2 - 14xy + 3y^2 = 20$
(2) $15x^2 + 14xy - 3y^2 = 20$
(3) $15x^2 + 14xy + 3y^2 = 20$

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(4) $15x^2-14xy-3y^2=20$

58. The lines $x-y-2=0, x+y-4=0$ and $x+3y=6$ meet in the comman point :

(1) (1,2) (2) (2,2)

(3) (3,1) (4) (1,1)

59. The equation of the line passing through the point of intersection of the lines $x-3y+2=0$ and $2x+5y-7=0$ and perpendicular to the line $3x+2y+5=0$ is:

(1) $2x-3y+1=0$ (2) $6x-9y+11=0$

(3) $2x-3y+5=0$ (4) $3x-2y+1=0$

60. The area (in square units) of the triangle formed by the lines $x=0, y=0$ and $3x+4y=12$, is :

(1) 3 (2) 4

(3) 6 (4) 12

61. The area of the triangle formed by the pair of straight lines $(ax+by)^2-3(bx-ay)^2=0$ and $ax+by+c=0$, is :

(1) $\frac{c^2}{a^2+b^2}$ (2) $\frac{c^2}{2(a^2+b^2)}$

(3) $\frac{c^2}{\sqrt{2}(a^2+b^2)}$ (4) $\frac{c^2}{\sqrt{3}(a^2+b^2)}$

62. The product of the perpendicular distances from the origin on the pair of straight line $12x^2+25xy+12y^2+10x+11y+2=0$, is :

(1) $\frac{1}{25}$ (2) $\frac{2}{25}$

(3) $\frac{3}{25}$ (4) $\frac{4}{25}$

63. If PM is the perpendicular from P (2, 3) onto the line $x+y=3$, then the coordinates of M are :

(1) (2, 1) (2) (-1, 4)

(3) (1, 2) (4) (4, -1)

64. The equation of the straight line perpendicular to $5x-2y=7$ and passing through the point of intersection of the lines $2x+3y=1$ and $3x+4y=6$, is :

(1) $2x+5y+17=0$ (2) $2x+5y-17=0$

(3) $2x-5y+17=0$ (4) $2x-5y=17$

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

(1) $2=\sqrt{3}\,r\cos\theta-2r\sin\theta$

(2) $5=2\sqrt{3}\,r\sin\theta+4r\cos\theta$

(3) $2=\sqrt{3}r\cos\theta+2r\sin\theta$

(4) $5=2\sqrt{3}\,r\sin\theta+4r\cos\theta$

66. The area (in square units) of the quadrilateral formed by two pairs of liens $l^2x^2-m^2y^2-n(x+my)=0$ and $l^2x^2-m^2y^2+n(x-my)=0$ is :

(1) $\frac{n^2}{2|lm|}$ (2) $\frac{l^2}{|lm|}$

(3) $\frac{n}{2|lm|}$ (4) $\frac{n^2}{4|lm|}$

67. If the pair of straight lines given by $Ax^2+2Hxy+By^2=0, (H^2>AB)$ forms as equilateral triangle with line $ax+by+c=0$, then $(A+3B)(3A+B)$ is :

(1) H^2 (2) $-H^2$

(3) $2H^2$ (4) $4H^2$

68. If $(-2,6)$ is the image of the point (4, 2) with respect to line L = 0, then L equals :

(1) $3x-2y+5=0$ (2) $3x-2y+10=0$

(3) $2x+3y-5=0$ (4) $6x-4y-7=0$

69. Igf the angle θ is acute, then the acute angle between $x^2(\cos\theta-\sin\theta)+2xy\cos\theta+y^2$

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$\left(\cos\theta+\sin\theta\right)=0$ is :

(1) 2θ (2) $\theta/3$

(3) θ (4) $\theta/2$

70. If the pair of straight lines $xy-x-y+1=0$ and the line $ax+2y-3=0$ are concurrent, then a is equa to :

(1) –1 (2) 0

(3) 3 (4) 1

71. Distance betweeen the parallel lines $3x+4y+7=0$ and $3x+4y-5=0$ is :

(1) 2/5 (2) 12/5

(3) 5/12 (4) 3/5

72. Angle between the lines $2x-y-15=0$ and $3x+y+4=0$ is :

(1) 90° (2) 45°

(3) 180° (4) 60°

73. Equation of a line passing through $(1,-2)$ and perpendicular to the line $3x-5x+7=0$ is :

(1) $5x+3y+1=0$ (2) $3x+5y+1=0$

(3) $5x-3y-1=0$ (4) $3x-5y+1=0$

74. The number of the straight lines which is equally inclined to both the axes is :

(1) 4 (2) 2

(3) 3 (4) 1

75. The image of the point $(4,-3)$ with respect to the line $y = x$ is :

(1) $(-4,-3)$ (2) $(3,4)$

(3) $(-4,3)$ (4) $(-3,4)$

76. The triangle formed by the lines $x+y=0,\ 3x+y=4,\ x+3y=4$ is :

(1) isosceles (2) equilateral

(3) right-angled (4) none of these

77. The equation of line perpendicular to $x = c$ is :

(1) $y = d$ (2) $x = d$

(3) $x = 0$ (4) none of these

78. Equation of a line passing through the line of intersection of lines $x+y=0,\ 3x+y=4,\ x+3y=4$ and perpendicular to $6x-7y+3=0$, then its equation is :

(1) $119x+102y+125=0$

(2) $119x+102y=125$

(3) $119x-102y=125$

(4) none of these

79. Two lines are drawn through (3, 4), each of which makes angle of 45° with the line $x - y = 2$, then area of the triangle formed by these lines is :

(1) 9 *sq. units* (2) 9/2 sq. units

(3) 2 sq. units (4) 2/9 sq. units

80. Two consecutive sides of a parallelogram are $4x+5y=0$ and $7x+2y=0$. One diagonal of the parallelogram is $11x + 7y = 9$. If the other diagonal is $ax + by + c = 0$, then :

(1) $a = -1$, b = –1, c = 2

(2) $a = 1$, b = –1, c = 0

(3) $a = -1$, b = –1, c = 1

(4) $a = 1$, b = 1, c = 1

(5) $a = -1$, b = –1, c = 1

81. If the lines $3x + 4y + 1 = 0$, $5x+\lambda y+3=0$ and $2x + y - 1 = 0$ are concurrent, then λ is equal to :

(1) –8 (2) 8

(3) 4 (4) –4

(5) none of these

82. If $(-4,5)$ is one vertex and $7x-y+8=0$ is one diagonal of a square, then the equation of second diagonal is :

(1) $x + 3y = 21$ (2) $2x - 3y = 7$

(3) $x + 7y = 32$ (4) $2x + 3y = 21$

(5) $x - 3y = 21$

83. The angle between the pair of straight lines

$$y^2\sin^2\theta-xy\sin^2\theta+x^2\left(\cos^2\theta-1\right)=0 \text{ is :}$$

(1) $\dfrac{\pi}{3}$ (2) $\dfrac{\pi}{3}$

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(3) $\frac{\pi}{6}$ (4) $\frac{\pi}{2}$

(5) π

84. If the pairs of lines $x^2 - 2nxy - y^2 = 0$ and $x^2 - 2mxy - y^2 = 0$ atre such that one of them represents the bisectors of the angles between the other , then :

(1) $\frac{1}{n} + \frac{1}{m} = 0$ (2) $\frac{1}{n} - \frac{1}{m} = 0$

(3) $nm - 1 = 0$ (4) $nm + 1 = 0$

(5) $\frac{1}{m} - \frac{1}{n} = 0$

85. The distance between the pair of parallel lines $x^2 + 4xy + 4y^2 + 3x + 6y - 4 = 0$ is :

(1) $\sqrt{5}$ (2) $\frac{2}{\sqrt{5}}$

(3) $\frac{1}{\sqrt{5}}$ (4) $\frac{\sqrt{5}}{2}$

(5) $\sqrt{\frac{5}{2}}$

86. 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 :

(1) the incentre (2) the centroid

(3) the orthocentre (4) the circumcentre

87. A straight line through P (1, 2) is such that its intercept between the axes is bisected at P. Its equationis :

(1) $x + y = -1$ (2) $x + y = 3$

(3) $x + 2y = 5$ (4) $2x + y = 4$

88. If the equation $kx^2 - 2xy - y^2 - 2x + 2y = 0$ represents a pair of lines, then k is equal to :

(1) 2 (2) – 2

(3) – 5 (4) 5

(5) 3

89. Distance between the lines $5x + 3y - 7 = 0$ and $15x + 9y + 14 = 0$ is :

(1) $\frac{35}{\sqrt{34}}$ (2) $\frac{1}{3\sqrt{34}}$

(3) $\frac{35}{3\sqrt{34}}$ (4) $\frac{35}{2\sqrt{34}}$

90. The value of λ for which the lines $3x + 4y = 5, 5x + 4y = 4$ and $\lambda x + 4y = 6$ meet at a point is :

(1) 2 (2) 1

(3) 4 (4) 3

91. The line $\frac{x}{a} - \frac{y}{b} = 1$ cuts the x- axis at P. The equation of the line through P perpendicular to the given line is :

(1) $x + y = ab$ (2) $x + y = a + b$

(3) $ax + by = a^2$ (4) $bx + ay = b^2$

92. The point moves such that the area of the triangle formed by it with the points (1, 5) and (3, – 7) is 21 sq. units. The locus of the point is :

(1) $6x + y - 32 = 0$ (2) $6x - y + 32 = 0$

(3) $x + 6y - 32 = 0$ (4) $6x - y - 32 = 0$

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

(1) $\frac{\pi}{4}$ (2) $\frac{\pi}{6}$

(3) $\frac{\pi}{3}$ (4) $\frac{3\pi}{4}$

94. The angle between the lines $2x - y + 3 = 0$ and $x + 2y + 3 = 0$ is :

(1) 90° (2) 60°

(3) 45° (4) 30°

95. Distance between the pair of lines represented by the equation $x^2 - 6xy + 9y^2 + 3x - 9y - 4 = 0$ is

(1) $\frac{15}{\sqrt{10}}$ (2) $\frac{1}{2}$

(3) $\sqrt{\frac{5}{2}}$ (4) $\frac{1}{\sqrt{10}}$

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96. If the equation $2x^2+7xy+3y^2-9x-7y+k=0$ represents a pair of lines, then k is equal to :
(1) 4 (2) 2
(3) 1 (4) – 4

97. The lines represented by $ax^2+2hxy+by^2=0$ are perpendicular to each other, if :
(1) $h^2=a+b$ (2) $a+b=0$
(3) $h^2=ab$ (4) $h=0$

98. If the lines $x+3y-9=0, 4x+by-2=0$ and $2x-y-4=0$ are concurrent, then b equals :
(1) – 5 (2) 5
(3) 1 (4) 0

99. The equation to the line bisecting the join of (3,–4) and (5, 2) and having its intercepts on the x-axis and the y-axis in the ratio 2 : 1 is :
(1) $x+y-3=0$ (2) $2x-y=9$
(3) $x+2y=2$ (4) $2x+y=7$

100. The distance between the pair of parallel lines $x^2+2xy+y^2+8ax+8ay-9a^2=0$ is :
(1) $2\sqrt{5}a$ (2) $10\sqrt{a}$
(3) 10 a (4) $5\sqrt{2}a$

101. If a tangentto the curve $y=6x-x^2$ is parallel to the line $4x-2y-1=0$, then the point of tangency on the curve is :
(1) (2,8) (2) (8,2)
(3) (6,1) (4) (4,2)

102. Equation of the straight line making equation intercepts on the axies and passing through the point *(2,4)* is :
(1) $4x-y-4=0$ (2) $2x+y-8$
(3) $x+y-6$ (4) $x+2y-10=0$

103. If $ax^2-y^2+4x-y=0$ represents a pair of lines, then a equal to
(1) – 16 (2) 16
(3) 4 (4) – 4

104. If the slope of one of the lines given by $ax^2+2hxy+by^2=0$ is 5 times the other, then
(1) $5h^2=ab$ (2) $5h^2=9ab$
(3) $9h^2=5ab$ (4) $h^2=ab$

105. The angle between the lines in $x^2-xy-6y^2-7x+31y-18=0$ is
(1) 45° (2) 60°
(3) 90° (4)30°

106. The equation of the line bisecting perpendicularly the segment joining the points (–4, 6) and (8, 8) is
(1) $6x+2y-19=0$ (2) $y=7$
(3) $6x+2y-19=0$ (4) $x+2y-7=0$

107. In what ratio is the ilne $y-x+2=0$ divides the line joining the pionts (3, –1) and (8, 9) ?
(1) 1 : 2 (2) 2 : 1
(3) 2 : 3 (4) 3 : 4

108. If equation $3x^2+xy+y^2-3x+6y+k=0$ represents a pair of lnes, then k is equal to
(1) 9 (2) 1
(3) 0 (4) – 9

109. A line AB makes zero intercepts on x-axis and y-axis and it is perpendicular to another line CD, $3x+4y+6=0$. The equation of line aB is
(1) $y=4$ (2) $4x-3y+8=0$
(3) $4x-3y=0$ (4) $4x-3y+6=0$

110. The angle between the lines $x^2+4xy+y^2=0$ is
(1) 60° (2) 15°
(3) 30° (4) 45°

111. The equation $2x^2+4xy-ky^2+4x+2y-1=0$ represents a pair of lines. the value of k is
(1) $-\frac{5}{3}$ (2) $\frac{5}{3}$

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(3) $\frac{1}{3}$ (4) $-\frac{1}{3}$

112. The equation

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

(1) $\frac{7}{2}$ (2) –19

(3) – 12 (4) 12

113. Seperate equation of lines for a pair of lines shose equation is $x^2 + xy - 12y^2 = 0$

(1) $x + 4y = 0$ *and* $x + 3y = 0$

(2) $2x - 3y = 0$ *and* $x - 4y = 0$

(3) $x - 6y = 0$ *and* $x - 3y = 0$

(4) $x + 4y = 0$ *and* $x - 3y = 0$

114. If $(-4, 5)$ is one vertex and $7x - y + 8 = 0$ is one diagonal of a square, then the equation of the second diagonal is

(1) $x + 3y = 21$ (2) $2x - 3y = 7$

(3) $x + 7y = 31$ (4) $2x + 3y = 21$

115. Two consecutive sides of a parallelogram are $4x + 5y = 0$ and $7x + 2y = 0$. One diagonal of the parallelgram is $11x + 7y = 9$. If the other diagonal is $ax + by + c = 0$, then :

(1) $a = -1, b = -1, c = 2$

(2) $a = 1, b = -1, c = 0$

(3) $a = -1, b = -1, c = 0$

(4) $a = 1, b = 1, c = 0$

116. The point on the curve $\sqrt{x} + \sqrt{y} = \sqrt{a}$, the *x*-axis $\sqrt{x} + \sqrt{y} = \sqrt{a}$, is

(1) (0, 0) (2) (0, *a*)

(3) (*a*, 0) (4) (*a*, *a*)

117. $ax - by - a^2 = 0$, where *a*, *b* are non-zero, is the equation to the straight line perpendicular to a line *l* and passing through the point where *l* crosses the *x*-axis. Then equation to the lines *l* is

(1) $\frac{x}{b} - \frac{y}{a} = 1$ (2) $\frac{x}{a} - \frac{y}{b} = 1$

(3) $\frac{x}{b} + \frac{y}{a} = ab$ (4) $\frac{x}{a} - \frac{y}{b} = ab$

118. The equation to the sides of a straight are $x - 3y = 0$, $4x + xy = 5$ and $3x + y = 0$. The line $3x - 4y = 0$ passes through

(1) the incentre (2) the centroid

(3) the orthocentre (4) the circumcentre

119. If the equation $kx^2 - 2xy - y^2 - 2x + 2y = 0$ represents a pair of lines, then *k* is equal to

(1) 2 (2) – 2

(3) – 5 (4) 3

120. The length of perpendicular from the point $(a\cos\alpha, a\sin\alpha)$ upon the straight line $y = x\tan\alpha + c, c > 0$, is

(1) *c* (2) $c\sin^2\alpha$

(3) $c\cos\alpha$ (4) $c\sec^2\alpha$

121. The three straight lines $ax + by = c, bx + cy = a$ and $cx + ay = b$ are collinear, if

(1) $b + c = a$ (2) $c + a = b$

(3) $a + b + c = 0$ (4) $a + b = c$

122. The value of 1 for which the equation $x^2 - y^2 - x\lambda - 2 = 0$ represents a pair of straight lines, are

(1) –3, 1 (2) – 1, 1

(3) 3, – 3 (4) 3, 1

123. The equation of pair of lines joining origin to the points of intersectino of $x^2 + y^2 = 9$ and $x + y = 3$ is

(1) $x^2 + (3 - x)^2 = 9$ (2) $xy = 0$

(3) $(3 + y)^2 + y^2 = 9$ (4) $(x - y)^2 = 9$

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124. The angle between the straight lines $x - y\sqrt{3} = 5$ and $\sqrt{3}x + y = 7$ is

(1) 90° (2) 60°

(3) 75° (4) 30°

125. Equation to the straight line cutting off an intercept 2 from the negative direction of the axis of y and inclined at 30° to the positive direction of axis of x, is

(1) $y + x - \sqrt{3} = 0$ (2) $y - x + 2 = 0$

(3) $y - \sqrt{3}x - 2 = 0$ (4) $\sqrt{3}y - x + 2\sqrt{3} = 0$

126. If the equation

$12x^2 - 10xy + 2y^2 + 11x - 5y + k = 0$

represents two straight lines, then the value of k is

(1) 1 (2) 2

(3) 0 (4) 3

127. The equation of the straight line which is perpendicular to $y = x$ and passes through (3, 2) is

(1) $x - y = 5$ (2) $x + y = 5$

(3) $x + y = 1$ (4) $x - y = 1$

128. The equation of the straight line joining the origin to the point of interection of $y - x + 7 = 0$ and $y + 2x - 2 = 0$ is

(1) $3x + 4y = 0$ (2) $3x - 4y = 0$

(3) $4x - 3y = 0$ (4) $4x + 3y = 0$

129. If we reduce $3x + 3y + 7 = 0$ to the form $x\cos\alpha + y\sin\alpha = p$, then the value of p is

(1) $\frac{7}{2\sqrt{3}}$ (2) $\frac{7}{3}$

(3) $\frac{3\sqrt{7}}{2}$ (4) $\frac{7}{3\sqrt{2}}$

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

(1) $5\sqrt{2}$ (2) $2\sqrt{5}$

(3) $3\sqrt{5}$ (4) $5\sqrt{3}$

131. The equation of straight line through the intersection of the lines $x - 2y = 1$ and $x + 3y = 2$ and parallel to $3x + 4y = 0$ is

(1) $3x + 4y + 5 = 0$ (2) $3x + 4y - 10 = 0$

(3) $3x + 4y - 5 = 0$ (4) $3x + 4y + 6 = 0$

132. The equation $x^2 + kxy + y^2 - 5x - 7x + 6 = 0$ represents a pair of straight ines, then k is

(1) $\frac{5}{3}$ (2) $\frac{10}{3}$

(3) $\frac{3}{2}$ (4) $\frac{3}{10}$

133. The gradient of one of the lines of $ax^2 + 2hxy + by^2 = 0$ is twice that of the other, then

(1) $h^2 = ab$ (2) $h = a + b$

(3) $8h^2 = 9ab$ (4) $9h^2 = 8ab$

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