MATHS

BOOKS - NIKITA MATHS (HINGLISH)

PAIR OF STRAIGHT LINES

MULTIPLE CHOICE QUESTIONS

1. Second degree homogeneous equation in x and y always represents

A. a circle

B. a parabola

C. an ellipse

D. a pair of straight lines

Answer: D

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2. The condition of representing the coincident lines by the general quadratic equation $f(x, y) = 0$, is

A. $\Delta = 0, h^2 = ab$

B. $\Delta = o, a + b = 0$

C. $\Delta = 0, h^2 = ab, g^2 = ac, f^2 = bc$

D. $h^2 = ab, g^2 = ac, f^2 = bc$

Answer: C

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3. If in the general quadratic equation $f(x, y) = 0, \Delta = 0$ and $h^2 = ab,$ then the equation represents.

A. two straight lines

B. two parallel lines

C. two perpendicular lines

D. two intersecting lines

Answer: B

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4. If m_1 and m_2 are the slopes of the lines represented by $ax^2 + 2hxy + by^2 = 0$, then $m_1 + m_2 =$

A. $\frac{2h}{a}$

B. $\frac{-2h}{a}$

C. $\frac{2h}{b}$

D. $\frac{-2h}{b}$

Answer: D

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5. If m_1 and m_2 are the slopes of the lines represented by $ax^2 + 2hxy + by^2 = 0$, then $m_1 m_2 =$

A. $\frac{a}{b}$

B. $\frac{-a}{b}$

C. $\frac{b}{a}$

D. $\frac{-b}{a}$

Answer: A

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6. If θ is the angle between the lines represented by $ax^2 + 2hxy + by^2 = 0$, then $\tan\theta =$

A. $\pm\frac{\sqrt{h^2 - ab}}{a + b}$

B. $\pm\frac{\sqrt{h^2 - 4ab}}{a + b}$

C. $\pm \frac{2\sqrt{h^2 - ab}}{a + b}$

D. $\pm \frac{2\sqrt{h^2 - 4ab}}{a + b}$

Answer: C

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7. The lines represents by $ax^2 + 2hxy + by^2 = 0$ are perpendicular to each other , if

A. $h^2 = ab$

B. $ab = 1$

C. $a = -b$

D. $a = b$

Answer: C

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8. The product of perpendiculars let fall from the point (x_1, y_1) upon the lines represented by $ax^2 + 2hxy + by^2$, is

A. $\left| \frac{ax_1^2 + 2hx_1y_1 + by_1^2}{\sqrt{(a-b)^2 - 4h^2}} \right|$

B. $\left| \frac{ax_1^2 + 2hx_1y_1 + by_1^2}{\sqrt{(a-b)^2 + 4h^2}} \right|$

C. $\left|\frac{ax_1^2+2hx_1y_1+by_1^2}{\sqrt{(a+b)^2-4h^2}}\right|$

D. $\left|\frac{ax_1^2+2hx_1y_1+by_1^2}{\sqrt{(a+b)^2+4h^2}}\right|$

Answer: B

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9. If $ax^2+2hxy+by^2+2gx+2fy+c=0$ represents parallel straight lines, then

A. $abc+2gfh-af^2-bg^2-ch^2=0$

B. $h^2-ab=0$

C. $h^2 > ab$

D. $h^2 < ab$

Answer: A

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10. If the equation

$$ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$$

represents a pair of parallel lines, then

A. $\frac{a}{h} = \frac{b}{h} = \frac{f}{g}$

B. $\frac{a}{b} = \frac{b}{h} = \frac{g}{f}$

C. $\frac{a}{h} = \frac{h}{b} = \frac{g}{f}$

D. $\frac{h}{a} = \frac{b}{h} = \frac{g}{f}$

Answer: C

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11. If the equation

$$ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$$

represents a pair of parallel lines, then

A. $2\sqrt{\frac{g^2 - ac}{h^2 + a^2}}$

B. $\sqrt{\frac{g^2 - ac}{h^2 + a^2}}$

C. $2\sqrt{\frac{g^2+ac}{h^2+a^2}}$

D. $\sqrt{\frac{g^2+ac}{h^2+a^2}}$

Answer: A

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12. Lines represented by $4x^2+4xy+y^2=0$ are

A. real and distinct

B. real and coincident

C. imaginary

D. perpendicular

Answer: B

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13. Lines represented by $x^2 - y^2 = 0$ are

A. real and distinct

B. real and coincident

C. imaginary

D. parallel

Answer: A

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14. Lines represented by $x^2 + 7xy + 2y^2 = 0$ are

A. real and distinct

B. real and coincident

C. imaginary

D. perpendicular

Answer: A

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15. Lines represented by $x^2 + 2xy - y^2 = 0$ are

A. real and distinct

B. real and coincident

C. imaginary

D. parallel

Answer: A

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16. If the lines represented by $ax^2 + 4xy + 4y^2 = 0$ are real distinct, then

A. $a = 0$

B. $a = 1$

C. $a < 1$

D. $a > 1$

Answer: C

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17. if lines represented by equation $px^2 - qy^2 = 0$ are distinct, then

A. $pq > 0$

B. $pq < 0$

C. $pq = 0$

D. $p + q = 0$

Answer: A

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18. Lines represented by $px^2 - qy^2 = 0$ are real and coincident, if

A. p and q have same sign

B. p and q have opposite sign

C. p and q is zero

D. $p \neq |q|$

Answer: C

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19. Lines represented by $px^2 - qy^2 = 0$ are imaginary, if

A. p and q have same sign

B. p and q have opposite sign

C. p and q is zero

D. $p \neq |q|$

Answer: B

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20. Which of the following equation does not represent a pair of lines ?

A. $x^2 - x = 0$

B. $xy - x = 0$

C. $y^2 - x + 1 = 0$

D. $xy + x + y + 1 = 0$

Answer: C

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21. If l, m, n are in AP, then the line lx+my+n=0` will always pass through the point

A. $(-1, 2)$

B. $(1, -2)$

C. $(2, 4)$

D. $(3, 2)$

Answer: B

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22. The separate equations of the lines represented by the equation $x^2 - 4y^2 = 0$ are

A. $x - 2y = 0$ and $2x + y = 0$

B. $2x - y = 0$ and $x + 2y = 0$

C. $x - 2y = 0$ and $x + 2y = 0$

D. $2x - y = 0$ and $2x + y = 0$

Answer: C

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23. The separate equations of the lines represented by the equation $3x^2 - y^2 = 0$ are

A. $\sqrt{3}x + 2y = 0$ and $\sqrt{3} - 2y = 0$

B. $\sqrt{3}x - y = 0$ and $\sqrt{3}x + y = 0$

C. $3x - y = 0$ and $x + y = 0$

D. $3x + y = 0$ and $x - y = 0$

Answer: B

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24. The separate equations of the lines represented by the equation $5x^2 - 9y^2 = 0$ are

A. $5x - 3y = 0$ and $5x + 3y = 0$

B. $5x - 3y = 0$ and $5x + 9y = 0$

C. $\sqrt{3}x - 3y = 0$ and $\sqrt{5}x + 3y = 0$

D. $\sqrt{5}x - 9y = 0$ and $\sqrt{5}x + 9y = 0$

Answer: C

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25. The separate equations of the lines represented by the equation $5x^2 - 3y^2 = 0$ are

A. $\sqrt{5}x - \sqrt{3}y = 0$ and $\sqrt{5}x + \sqrt{3}y = 0$

B. $\sqrt{5}x - \sqrt{3}y = 0$ and $\sqrt{3}x + \sqrt{5}y = 0$

C. $5x - 3y = 0$ and $x + y = 0$

D. $x - y = 0$ and $5x - 3y = 0$

Answer: A

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26. The separate equations of the lines given by $(x-4)^2 - 16(y-5)^2 = 0$ are

A. $x + 4y + 16 = 0$ and $x - 4y - 24 = 0$

B. $x + 4y - 16 = 0$ and $x - 4y - 24 = 0$

C. $x + 4y - 16 = 0$ and $x - 4y + 24 = 0$

D. $x + 4y + 16 = 0$ and $x - 4y + 24 = 0$

Answer: A

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27. Equation $y^2 - x^2 + 2x - 1 = 0$ represents

A. a circle

B. a parabola

C. an ellipse

D. a pair of straight lines

Answer: D

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28. The equation $(x+y)^2-\left(x^2+y^2\right)=0$ represents

A. Two mutually perpendicular lines

B. two parallel lines

C. Two lines

D. a circle

Answer: A

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29. One of the lines represented by $x^2 + 6xy = 0$ is

A. X-axis

B. Y-axis

C. parallel to X-axis

D. parallel to Y-axis

Answer: B

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30. The separate equations of the lines represented by the equation $x^2 - 4xy = 0$ are

A. $x = 0$ and $x - 2y = 0$

B. $x = 0$ and $x + 2y = 0$

C. $x = 0$ and $x - 4y = 0$

D. $x = 0$ and $x + 4y = 0$

Answer: C

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31. The separate equations of the lines represented by the equation $y^2 + 7xy = 0$ are

A. $y = 0$ and $3x - 7y = 0$

B. $y = 0$ and $3x + 7y = 0$

C. $y = 0$ and $7x - 3y = 0$

D. $y = 0$ and $7x + 3y = 0$

Answer: D

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32. Separate equations of the two lines jointly given by $ab(x^2 - y^2) + (a^2 - b^2)xh = 0$ are

A. $ax + by = 0$ and $bx + ay = 0$

B. $ax + by = 0$ and $bx - ay = 0$

C. $ax - by = 0$ and $bx + ay = 0$

D. $ax - by = 0$ and $bx - ay = 0$

Answer: C

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33. Statement -1 : If $a > b > c$, then the lines represented by $(a-b)x^2 + (b-c)xy + (c-a)y^2 = 0$ are real and distinct.

Statement-2 : Pair of lines represented by $ax^2 + 2hxy + by^2 = 0$ are real and distinct if $h^2 > ab$.

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

B. $a(b-c)x - c(a-b)y = 0$ and $x - y = 0$

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

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

Answer: B

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34. The equation of the lines represented by $3x^2 - 7xy + 4y^2 = 0$ are

A. $x + 2y = 0$ and $3x + 2y = 0$

B. $3x - y = 0$ and $x - 4y = 0$

C. $x - 2y = 0$ and $3x - 2y = 0$

D. $x - y = 0$ and $3x - 4y = 0$

Answer: D

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35. The equation of the lines represented by $3x^2 - 10xy - 8y^2 = 0$ are

A. $x - 2y = 0$ and $3x + 4y = 0$

B. $x - 4y = 0$ and $3x + 2y = 0$

C. $x + 2y = 0$ and $3x - 4y = 0$

D. $x + 4y + 16 = 0$ and $3x - 2y = 0$

Answer: B

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36. The equation of the lines represented by $6x^2 - 5xy - 6y^2 = 0$ are

A. $2x + 3y = 0$ and $3x + 2y = 0$

B. $2x - 3y = 0$ and $3x - 2y = 0$

C. $2x - 3y = 0$ and $3x + 2y = 0$

D. $2x + 3y = 0$ and $3x - 2y = 0$

Answer: C

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37. The equation of the lines represented by $3x^2 - 2\sqrt{3}xy - 3y^2 = 0$ are

A. $x - \sqrt{3}y = 0$ and $\sqrt{3}x + y = 0$

B. $x + \sqrt{3}y = 0$ and $\sqrt{3}x - y = 0$

C. $x - 3y = 0$ and $3x + y = 0$

D. $x + 3y = 0$ and $3x + y = 0$

Answer: A

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38. The equation of the lines represented by $x^2 + 2xy - y^2 = 0$ are

A.

$$\left(1+\sqrt{2}\right)x - y = 0 \text{ and } \left(1-\sqrt{2}\right)x + y = 0$$

B.

$$\left(1+\sqrt{2}\right)x - y = 0 \text{ and } \left(1-\sqrt{2}\right)x - y = 0$$

C.

$$\left(\sqrt{2}+1\right)x - y = 0 \text{ and } \left(\sqrt{2}-1\right)x - y = 0$$

D.

$$\left(1+\sqrt{2}\right)x - y = 0 \text{ and } \left(\sqrt{2}-1\right)x - y = 0$$

Answer: B

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39. The equation of the lines represented by $2x^2 + 2xy - y^2 = 0$ are

A.

$$\left(1+\sqrt{3}\right)x + y = 0 \text{ and } \left(1-\sqrt{3}\right)x + y = 0$$

B.

$$\left(1+\sqrt{3}\right)x - y = 0 \text{ and } \left(1-\sqrt{3}\right)x - y = 0$$

C.

$$x - \left(1 - \sqrt{3}\right)y = 0 \text{ and } x - \left(1 - \sqrt{3}\right)y = 0$$

D.

$$x - \left(1 + \sqrt{3}\right)y = 0 \text{ and } x + \left(1 - \sqrt{3}\right)y = 0$$

Answer: B

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40. The equation of the lines represented by $x^2 + 2(\cos ec\alpha)xy + y^2 = 0$ are

A. $(1 \pm \sin\alpha)x + 2(\cos\alpha)y = 0$

B. $(1 \pm \cos\alpha)x + 2(\sin\alpha)y = 0$

C. $(1 \pm \sin\alpha)x + (\cos\alpha)y = 0$

D. $(1 \pm \cos\alpha)x + (\sin\alpha)y = 0$

Answer: D

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41. The separate equation of the lines represented by the equation $x^2 + 2(\tan\alpha)xy - y^2 = 0$ are

A. $(1 \pm \cos\alpha)x - \sin\alpha y = 0$

B. $(1 \pm \cos\alpha)x + \sin\alpha y = 0$

C. $(\tan\alpha \pm \sec\alpha)x - y = 0$

D. $(\tan\alpha \pm \sec\alpha)x + y = 0$

Answer: C

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42. The equation of the whose sum of the intercepts on the axes is 7 and is parallel to the common line of the lines represented by the equation

$6x^2 - xy - 12y^2 = 0$ and $15x^2 + 14xy - 8y^2 = 0$

is

A. $3x + 4y + 12 = 0$

B. $3x - 4y - 12 = 0$

C. $3x - 4y + 12 = 0$

D. $3x + 4y - 12 = 0$

Answer: D

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43. The separate equations of the lines represented by the equation $(x-2)^2 - 3(x-2)(y+1) - 3(y+1)^2 = 0$ are

A. $x - 2y - 4 = 0$ and $x - y - 3 = 0$

B. $x - 2y + 4 = 0$ and $x - y + 3 = 0$

C. $x + 2y - 4 = 0$ and $x + y - 3 = 0$

D. $x + 2y + 4 = 0$ and $x + y + 3 = 0$

Answer: A

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44. The separate equations of the lines represented by the line equation $(x+1)^2 + (x+1)(y-2) - 2(y-2)^2 = 0$ are

A. $2x + y - 4 = 0$ and $5x - 3y + 1 = 0$

B. $2x - y + 4 = 0$ and $5x + 3y - 1 = 0$

C. $2x + y + 4 = 0$ and $5x - 3y - 1 = 0$

D. $2x - y - 4 = 0$ and $5x + 3y + 1 = 0$

Answer: B

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45. The separate equations of the lines represented by the line equation $8(x-1)^2 + 10(x-1)(y-3) - 3(y-3)^2 = 0$ are

A. $4x + 3y + 13 = 0$ and $2x + y + 5 = 0$

B. $4x + 3y - 13 = 0$ and $2x + y - 5 = 0$

C. $4x + 3y - 13 = 0$ and $2x + y + 5 = 0$

D. $4x + 3y + 13 = 0$ and $2x + y - 5 = 0$

Answer: B

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46. The equation

$$(x-5)^2 + (x-5)(y-6) - 2(y-6)^2 = 0$$

represents

A. two lines

B. two lines passing through origin

C. two lines passing through the point (6, 5)

D. two passing through the point (5, 6)

Answer: D

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47. The joint equation of the line $2x + y = 0$ and $3x - 5y = 0$ is

A. $6x^2 + 3xy - 5y^2 = 0$

B. $6x^2 - 10xy - 5y^2 = 0$

C. $6x^2 + 7xy - 5y^2 = 0$

D. $6x^2 - 7xy - 5y^2 = 0$

Answer: D

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48. The joint equation of the line $x - y = 0$ and $x + y = 0$ is

A. $x^2 - xy + y^2 = 0$

B. $x^2 - xy - y^2 = 0$

C. $x^2 + y^2 = 0$

D. $x^2 - y^2 = 0$

Answer: D

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49. The joints equation of the lines $3x - 2y + 5 = 0$ and $5x - 3y = 0$ is

A. $15x^2 - 19xy + 6y^2 - 25x - 15y = 0$

B. $15x^2 - 19xy + 6y^2 + 25x - 15y = 0$

C. $15x^2 - xy + 6y^2 + 25x - 15y = 0$

D. $15x^2 + xy + 6y^2 + 25x - 15y = 0$

Answer: B

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50. The joint equation of the lines $3x + 2y - 1 = 0$ and $x + 3y - 2 = 0$ is

A. $3x^2 + 11xy + 6y^2 - 7x + 7y + 2 = 0$

B. $3x^2 + 11xy + 6y^2 + 7x - 7y + 2 = 0$

C. $3x^2 + 11xy + 6y^2 - 7x - 7y + 2 = 0$

D. $3x^2 + 11xy + 6y^2 + 7x + 7y + 2 = 0$

Answer: C

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51. The joint equation of the lines $x + 2y - 1 = 0$ and $2x - 3y + 2 = 0$ is

A. $2x^2 + xy - 6y^2 + 7y - 2 = 0$

B. $2x^2 - xy - 6y^2 + 7y - 2 = 0$

C. $2x^2 + xy + 6y^2 + 4y - 2 = 0$

D. $2x^2 - xy + 6y^2 - 4y - 2 = 0$

Answer: A

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52. Find the joint equation of the lines x+y-3 =0 and 2x+y-1 =0

A. $2x^2 + 3xy + y^2 - 4x - 7y + 3 = 0$

B. $2x^2 + 3xy + y^2 - 7x - 4y + 3 = 0$

C. $2x^2 + 3xy + y^2 + 7 - 4y + 3 = 0$

D. $2x^2 + 3xy + y^2 - 7x + 4y + 3 = 0$

Answer: B

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53. The combine equation of the lines passing through the origin and having slopes 3 and 2 is

A. $6x^2 + 5xy + y^2 = 0$

B. $6x^2 - 5xy + y^2 = 0$

C. $x^2 + 5xy + 6y^2 = 0$

D. $x^2 - 5xy + 6y^2 = 0$

Answer: B

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54. The combine equation of the lines passing through the origin and having slopes $1+\sqrt{3}$ and $1-\sqrt{3}$ is

A. $x^2+xy-2y^2=0$

B. $x^2+2xy-2y^2=0$

C. $2x^2+xy-y^2=0$

D. $2x^2+2xy-y^2=0$

Answer: D

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55. Find the combined equation of the lines passing through the origin and having inclinations $\frac{\pi}{3}$ and $\frac{5\pi}{3}$.

A. $x^2 + 3y^2 = 0$

B. $x^2 + y^2 = 0$

C. $3x^2 - y^2 = 0$

D. $x^2 - 3y^2 = 0$

Answer: C

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56. The combine equation of the lines passing through the origin and having inclinations 60° and 120° with X-axis is

A. $3x^2 - y^2 = 0$

B. $3x^2 + y^2 = 0$

C. $x^2 - 3y^2 = 0$

D. $x^2 + 3y^2 = 0$

Answer: A

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57. The joint equation of pair of lines passing through the origin and inclined at 30° and 60° with X-axis is

A. $2x^2 - 2xy + 3y^2 = 0$

B. $2x^2 - 2xy + \sqrt{3}y^2 = 0$

C. $\sqrt{3}(x^2 + y^2) = 4xy$

D. $4(x^2 + y^2) = \sqrt{3}xy$

Answer: C

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58. The combine equation of the lines passing through the origin and each of which makes an angle of 60° with the Y-axis is

A. $x^2 - 3y^2 = 0$

B. $3x^2 - y^2 = 0$

C. $x^2 - \sqrt{3}y^2 = 0$

D. $\sqrt{3}x^2 - y^2 = 0$

Answer: A

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59. The joint equation of lines passing through the origin and bisecting the angles between co-ordinate axes is

A. $x^2 - xy + y^2 = 0$

B. $x^2 - xy + y^2 = 0$

C. $x^2 - y^2 = 0$

D. $x^2 + y^2 = 0$

Answer: C

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60. The joint equation of lines passing through the origin and trisecting the first quadrant is

A. $x^2 + \sqrt{3}xy - y^2 = 0$

B. $x^2 - \sqrt{3}xy - y^2 = 0$

C. $\sqrt{3}x^2 - 4xy + \sqrt{3}y^2 = 0$

D. $3x^2 - y^2 = 0$

Answer: C

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61. The joint equation of lines passing through the origin and trisecting the second and fourth quadrant is

A. $\sqrt{3}x^2 + 4xy + \sqrt{3}y^2 = 0$

B. $x^2 - \sqrt{3}xy - y^2 = 0$

C. $\sqrt{3}x^2 - 4xy + \sqrt{3}y^2 = 0$

D. $3x^2 - y^2 = 0$

Answer: A

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62. The combine equation of the lines passing through the origin and which are at a distance of 9 units from the Y-axis is

A. $y^2 - 81 = 0$

B. $y^2 + 81 = 0$

C. $x^2 - 81 = 0$

D. $x^2 + 81 = 0$

Answer: C

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63. The joint equation of pair of lines through point (a, b) parallel to the co-ordinate axes is

A. $(x + a)(y + b) = 0$

B. $(x + a)(y - b) = 0$

C. $(x - a)(y - b) = 0$

D. $(x - a)(y + b) = 0$

Answer: D

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64. Combined equation of pair of lines, through (1,2) and parallel to co-ordinate axes is

A. $xy - 2x - y + 2 = 0$

B. $xy - x - 2y + 2 = 0$

C. $xy + 2x + y + 2 = 0$

D. $xy + x + 2y + 2 = 0$

Answer: A

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65. The combined equations of lines passing through $(2, 3)$ and parallel to the co-ordinate axes is

A. $xy - 3x - 2y + 2 = 0$

B. $xy + 3x + 2y + 6 = 0$

C. $xy = 0$

D. $xy - 3x - 2y - 6 = 0$

Answer: A

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66. The combined equations of lines passing through $(3, 2)$ and parallel to the co-ordinate axes is

A. $xy + 2x + 3y + 6 = 0$

B. $xy + 3x + 2y + 6 = 0$

C. $xy - 3x - 2y + 6 = 0$

D. $xy - 2x - 3y + 6 = 0$

Answer: D

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67. The joint equation of bisectors of angles between lines $x = 5$ and $y = 3$ is

A. $(x - 5)(y - 3) = 0$

B. $x^2 - y^2 - 10x + 6y + 16 = 0$

C. $xy = 0$

D. $xy - 5x - 3y + 15 = 0$

Answer: B

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68. The joint equation of pair of lines passing through the origin and parallel to the lines $y = m_1x + c_1$ and $y = m_2x + c_2$ is

A. $m_1m_2x^2 + (m_1 + m_2)xy + y^2 = 0$

B. $m_1m_2x^2 - (m_1 + m_2)xy + y^2 = 0$

C. $m_1m_2y^2 + (m_1 + m_2)xy + x^2 = 0$

D. $m_1m_2y^2 - (m_1 + m_2)xy + x^2 = 0$

Answer: B

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69. The combine equation of the lines passing through the origin and perpendicular to the lines $x + 2y = 19$ and $3x + y = 18$ is

A. $3x^2 - 7xy + 2y^2 = 0$

B. $2x^2 - 7xy + 3y^2 = 0$

C. $3x^2 + 7xy + 2y^2 = 0$

D. $2x^2 + 7xy + 3y^2 = 0$

Answer: B

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70. Joint equation of pair of lines passing through origin of which one is perpendicular and other is parallel to line $6x - 4y + 5 = 0$ is

A. $3x^2 + 5xy - 6y^2 = 0$

B. $6x^2 + 5xy - 6y^2 = 0$

C. $x^2 + 2xy + 6y^2 = 0$

D. $x^2 - 5xy + y^2 = 0$

Answer: B

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71. The joint equation of pair lines passing through the origin of which one is parallel and other is perpendicular to $5x + 3y = 7$ is

A. $x^2 - xy - y^2 = 0$

B. $3x^2 - 16xy + 3y^2 = 0$

C. $15x^2 - 16xy - 15y^2 = 0$

D. $15x^2 + 16xy + 15y^2 = 0$

Answer: C

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72. The joint equation of pair lines passing through the origin of which one is parallel$3x - y = 7$ and other is perpendicular to $2x + y = 8$ is

A. $3x^2 + xy + 2y^2 = 0$

B. $3x^2 - xy + 2y^2 = 0$

C. $3x^2 + 7xy + 2y^2 = 0$

D. $3x^2 - 7xy + 2y^2 = 0$

Answer: D

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73. The combined equation of pair of lines through point (2, -1) and parallel to the lines given by $3x^2 - 4xy + 2y^2 = 0$ is

A. $3x^2 - 4xy + 2y^2 + 16x + 12y - 22 = 0$

B. $3x^2 - 4xy + 2y^2 + 16x + 12y + 22 = 0$

C. $3x^2 - 4xy + 2y^2 + 16x - 12y + 22 = 0$

D. $3x^2 - 4xy + 2y^2 + 16x + 12y + 22 = 0$

Answer: B

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74. The joint equation of pair of lines through $(2, -1)$ and parallel to $2x^2 + 3xy - 9y^2 = 0$ is

A. $2x^2 + 3xy + 9y^2 - 5x - 24y + 7 = 0$

B. $2x^2 + 3xy - 9y^2 - 5x - 24y + 7 = 0$

C. $2x^2 + 3xy + 9y^2 - 5x - 24y - 7 = 0$

D. $2x^2 + 3xy - 9y^2 - 5x - 24y - 7 = 0$

Answer: D

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75. The joint equation of pair of lines through $(2, -3)$ and parallel to $x^2 + xy - y^2 = 0$ is

A. $x^2 + xy - y^2 - x - 8y - 11 = 0$

B. $x^2 + xy - y^2 - 8x - y - 11 = 0$

C. $x^2 + xy - y^2 - x - 8y + 11 = 0$

D. $x^2 + xy - y^2 - 8x - y + 11 = 0$

Answer: A

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76. The combined equation of lines passing through the point $(1, 2)$ and perpendicular to the lines $3x + 2y - 5 = 0ad2x - 5y + 1 = 0$ is

A. $10x^2 + 11xy - 6y^2 + 2x - 35y - 36 = 0$

B. $10x^2 + 11xy - 6y^2 - 2x + 3y - 36 = 0$

C. $10x^2 - 11xy - 6y^2 + 2x - 35y - 36 = 0$

D. $10x^2 - 11xy - 6y^2 + 2x + 35y - 36 = 0$

Answer: D

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77. The combined equation of lines passing through the point $(2, 3)$ and perpendicular to the lines $3x + 2y - 1 = 0$ and $x - 3y + 2 = 0$ is

A. $6x^2 - 7xy + 3y^2 - 3x - 32y - 45 = 0$

B. $6x^2 - 7xy - 3y^2 - 3x + 32y - 45 = 0$

C. $6x^2 - 7xy - 3y^2 + 3x + 32y - 45 = 0$

D. $6x^2 - 7xy + 3y^2 - 3x + 32y - 45 = 0$

Answer: B

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78. The combined equation of lines passing through the point $(-1, 2)$ and perpendicular to the lines $x + 2y + 3 = 0$ and $3x - 4y - 5 = 0$ is

A. $8x^2 + 2xy - 3y^2 - 12x + 14y + 8 = 0$

B. $8x^2 + 2xy - 3y^2 + 12x + 14y - 8 = 0$

C. $8x^2 + 2xy - 3y^2 + 12x - 14y - 8 = 0$

D. $8x^2 + 2xy - 3y^2 - 12x - 14y + 8 = 0$

Answer: B

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79. The combined equation of lines passing through the point $(3, 2)$ of which one is parallel to $x - 2y = 2$ and other is perpendicular to $y = 3$is

A. $x^2 - 2xy - 2x + 6y - 3 = 0$

B. $x^2 - 2xy - 4x + 6y + 3 = 0$

C. $x^2 - 2xy - 6x + 2y - 3 = 0$

D. $x^2 - 2xy - 6x + 4y + 3 = 0$

Answer: A

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80. The combined equation of lines passing through the point $(-1, 2)$ of which one is parallel to $x + 3y - 1 = 0$ and other is perpendicular to $2x - 3y - 1 = 0$ `is

A. $3x^2 + 11xy + 6y^2 + 16x + 13y + 5 = 0$

B. $3x^2 + 11xy + 6y^2 + 13x + 16y + 5 = 0$

C. $3x^2 + 11xy + 6y^2 - 16x - 13y + 5 = 0$

D. $3x^2 + 11xy + 6y^2 - 13x - 16y - 5 = 0$

Answer: C

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81. The joint equation of lines passing through point $(2, 3)$ of which one is parallel to $2x + 3y = 5$ and other is perpendicular to $x - 4y = 7$ is

A. $(2x + 3y + 13)(4x + y + 11) = 0$

B. $(2x + 3y - 13)(4x + y - 11) = 0$

C. $(2x + 3y - 13)(4x + y - 11) = 0$

D. $(2x + 3y - 13)(4x + y + 11) = 0$

Answer: B

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82. The combined equation of the pair of lines through the origin and perpendicular to the pair of lines given by $ax^2 + 2hxy + by^2 = 0$, is

A. $a^2 - 2hxy + by^2 = 0$

B. $bx^2 + 2hxy + ay^2 = 0$

C. $bx^2 - 2hxy + ay^2 = 0$

D. $bx^2 + hxy + ay^2 = 0$

Answer: C

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83. The joint equation of linespassing through the origin and perpendicular to lines represented by $5x^2 - 8xy + 3y^2 = 0$ is

A. $3x^2 + 8xy + 5y^2 = 0$

B. $3x^2 - 8xy + 5y^2 = 0$

C. $3x^2 + 4xy + 5y^2 = 0$

D. $3x^2 - 4xy + 5y^2 = 0$

Answer: A

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84. The joint equation of lines passing through the origin and perpendicular to lines represented by $5x^2 + 2xy - 3y^2 = 0$ is

A. $3x^2 - 4xy - 5y^2 = 0$

B. $3x^2 + 4xy - 5y^2 = 0$

C. $3x^2 - 2xy - 5y^2 = 0$

D. $3x^2 + 2xy - 5y^2 = 0$

Answer: D

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85. The joint equation of lines passing through the origin and perpendicular to lines represented by $x^2 + 4xy - 5y^2 = 0$ is

A. $5x^2 + 4xy + y^2 = 0$

B. $5x^2 + 4xy - y^2 = 0$

C. $5x^2 - 4xy + y^2 = 0$

D. $5x^2 - 4xy - y^2 = 0$

Answer: B

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86. The joint equation of lines passing through the origin and perpendicular to lines represented by $2x^2 - 3xy - 9y^2 = 0$ is

A. $9x^2 - 3xy - 2y^2 = 0$

B. $9x^2 - 3xy + 2y^2 = 0$

C. $9x^2 + 3xy - 2y^2 = 0$

D. $9x^2 + 3xy + 2y^2 = 0$

Answer: A

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87. The joint equation of lines passing through the origin and perpendicular to lines represented by $x^2 + xy - y^2 = 0$ is

A. $x^2 - xy - y^2 = 0$

B. $x^2 - xy + y^2 = 0$

C. $x^2 + xy - y^2 = 0$

D. $x^2 + 2xy - y^2 = 0$

Answer: C

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88. The combined equation of pair of lines passing through origin and perpendicular to the lines given by $2x^2 - 3xy + y^2 = 0$ is

A. $x^2 + 3xy + 2y^2 = 0$

B. $x^2 - 3xy + 2y^2 = 0$

C. $2x^2 + 3xy + y^2 = 0$

D. $2x^2 - 3xy + y^2 = 0$

Answer: A

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89. The combined equation of pair of lines passing through origin and perpendicular to the lines given by $5x^2 + 3xy - 2y^2 = 0$ is

A. $2x^2 + 3xy + 5y^2 = 0$

B. $2x^2 \pm xy + 5y^2 = 0$

C. $2x^2 + 3xy - 5y^2 = 0$

D. $2x^2 - 3xy - 5y^2 = 0$

Answer: C

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90. The joint equation of lines passing through the origin and perpendicular to lines represented by $2x^2 + 5xy + 2y^2 + 10x + 5y = 0$ is

A. $2x^2 - 5xy + 2y^2 = 0$

B. $2x^2 + 5xy - 2y^2 = 0$

C. $2x^2 - 5xy - 2y^2 = 0$

D. $2x^2 + 5xy + 2y^2 = 0$

Answer: A

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91. The joint equation of pair of lines through point $(1, 2)$ and perpendicular to the lines given by $2x^2 - 5xy + 3y^2 = 0$ is

A. $3x^2 + 5xy + 2y^2 - 16x + 13y - 21 = 0$

B. $3x^2 + 5xy + 2y^2 + 16x - 13y - 21 = 0$

C. $3x^2 + 5xy + 2y^2 - 16x - 13y - 21 = 0$

D. $3x^2 + 5xy + 2y^2 - 16x - 13y + 21 = 0$

Answer: D

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92. The equation $ax^2 + 2hxy + ay^2 = 0$ represents a pair of coincident lines through origin, if

A. $h = 2a$

B. $2h = a$

C. $h = \pm a$

D. $2h^2 = a$

Answer: C

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93. The equation $4x^2 + hxy + y^2 = 0$ represents a pair of coincident lines through origin, if h=

A. ± 2

B. ± 16

C. ± 4

D. ± 3

Answer: C

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94. If the equation $k\left(x^2+y^2\right)=8xy$ represents a pair of coincident lines, If k=

A. ± 1

B. ± 16

C. ± 2

D. ± 4

Answer: D

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95. If the equation $(k+1)x^2 - 6xy + (k-7)y^2 = 0$ represents a pair of coincident lines, If k=

A. $8, \ -2$

B. $-8, 2$

C. $-8, \ -2$

D. $8, 2$

Answer: A

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96. If the equation $a^2x^2 + bxy^2 = a(b+c)xy$ represents a pair of coincident lines, then

A. $b = a$

B. $b = c$

C. $c = a$

D. $a + b = 0$

Answer: B

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97. Which of the following pair of straight lines intersect at right angle?

A. $y = \pm 2x$

B. $2y(x + y) = xy$

C. $(x + y)^2 = x(3x + y)$

D. $2x^2 = y(x + 2y)$

Answer: D

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98. The equation $x^2 + \alpha xy + \beta y^2 = 0$ represents a pair of perpendicular lines , if

A. $\alpha = 2\beta$

B. $\beta = -1$

C. $2\alpha = \beta$

D. $\alpha\beta = -1$

Answer: B

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99. If the equation $K\left(x^2+y^2\right)=(3x-y)^2$ represents a pair of coincident lines, then k=

A. -5

B. 5

C. -9

D. -1

Answer: B

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100. If the equation $(kx+y)^2 = k(x^2+y^2)$ represents a pair of perpendicular lines, then k=

A. -2

B. -1

C. 1

D. 2

Answer: C

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101. If the lines represented by $\sin^2\alpha\left(x^2+y^2\right)=((\cos\alpha)x-(\sin\alpha)y)^2$ are perpendicular to each other, then $\alpha=$

A. 0

B. $\frac{\pi}{3}$

C. $\frac{\pi}{2}$

D. $\frac{\pi}{4}$

Answer: D

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102. If $ax^2 + 6xy + 3y^2 - 10x + 10y - 6 = 0$ represents a pair of perpendicular lines, then $|a| =$

A. ± 3

B. 0

C. -3

D. 3

Answer: D

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103. The sum of the slopes of the lines given by $x^2 - 7xy + 12y^2 = 0$ is

A. $\frac{-7}{12}$

B. $\frac{7}{12}$

C. $\frac{-1}{12}$

D. $\frac{1}{12}$

Answer: B

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104. The product of the slopes of the line given by $x^2 - xy - 6y^2 = 0$ is

A. $\frac{-1}{3}$

B. $\frac{1}{3}$

C. $\frac{-1}{6}$

D. $\frac{1}{6}$

Answer: C

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105. If the sum of the slopes of the lines given by $3x^2 + kxy - y^2 = 0$ is zero, then k=

A. -1

B. 0

C. 3

D. -3

Answer: B

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106. If the lines represented by $6x^2 + 41xy - 7y^2 = 0$ makes angle α and β with X-axis, then $\tan\alpha \times \tan\beta$

A. $\frac{-6}{7}$

B. $\frac{6}{7}$

C. $\frac{-7}{6}$

D. $\frac{7}{6}$

Answer: A

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107. If the lines represented by $ax^2 - bxy - y^2 = 0$ makes angle α and β with X-axis, then $\tan(\alpha + \beta) =$

A. $\frac{-a}{1+b}$

B. $\frac{a}{1+b}$

C. $\frac{-b}{1+a}$

D. $\frac{b}{1+a}$

Answer: C

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108. If the lines represented by $x^2 - 4xy + y^2 = 0$ makes angle α and β with X-axis, then $\tan^2\alpha + \tan^2\beta =$

A. 2

B. -2

C. 14

D. -14

Answer: C

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109. If the sum of the square of slopes of the lines represented by $kx^2 - 3xy + y^2 = 0$ is 5, then k=

A. 1

B. 2

C. 3

D. 4

Answer: B

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110. If the slope of one of the lines given by $kx^2 + (3k+1)xy + 3y^2 = 0$ is reciprocal of the slope of the other line, then k=

A. 2

B. -2

C. 3

D. -3

Answer: C

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111. If the slope of one of the lines given by $ax^2 + 2hxy + by^2 = 0$ is k times the slope of other, then

A. $kh^2 = 4ab(1+k)^2$

B. $kh^2 = 2ab(1+k)^2$

C. $4xh^2 = ab(1+k)^2$

D. $2kh^2 = ab(1+k)^2$

Answer: C

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112. If the sum of the slopes of the lines given by $2x^2 + kxy - 3y^2 = 0$ is equal to their product, then k=

A. -2

B. 2

C. $\frac{-2}{3}$

D. $\frac{-2}{9}$

Answer: A

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113. If sum of the slopes of the lines represented by $x^2 + kxy - 3y^2 = 0$ is twice their product, then k=

A. -2

B. 2

C. $\frac{-2}{3}$

D. $\frac{2}{3}$

Answer: A

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114. If the sum of the slopes given by $ax^2 + 8xy + 5y^2 = 0$ is twice their product, then a=

A. -8

B. 2

C. 4

D. -4

Answer: D

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115. if $\frac{X^2}{a}+\frac{y^2}{b}+\frac{2xy}{h}=0$ represent pair of straight lies and slope one line is twice the other line then $ab:h^2$.

A. $1:2$

B. $2:1$

C. $8:9$

D. $9:8$

Answer: D

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116. If the slopes of the line given by $6x^2 + 2hxy + y^2 = 0$ are in the ratio $1:2$, then h=

A. $\frac{3\sqrt{3}}{2}$

B. $\frac{3}{2\sqrt{3}}$

C. $\frac{3}{2}$

D. $\frac{27}{4}$

Answer: A

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117. If the slopes of one of the line given by $ax^2 + 2hxy + by^2 = 0$ is three times the other, then

A. $4h^2 = 3ab$

B. $2h^2 = 3ab$

C. $3h^2 = 4ab$

D. $3h^2 = 2ab$

Answer: C

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118. If the slopes of one of the line given by $3x^2 + 4xy + ky^2 = 0$ is three times the other, then k=

A. 0

B. 1

C. 3

D. -1

Answer: B

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119. If the ratio of gradients of the line given by $ax^2 + 2hxy + by^2 = 0$ is $1:3$, then $h^2 : ab =$

A. $\frac{1}{3}$

B. 1

C. $\frac{3}{4}$

D. $\frac{4}{3}$

Answer: D

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120. If the slope of one of the line given by $ax^2 + 2hxy + by^2 = 0$ is four times the other, then

A. $4h + 5ab = 0$

B. $4h - 5ab = 0$

C. $16h^2 + 25ab = 0$

D. $16h^2 - 25ab = 0$

Answer: D

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121. If the slope of one of the lines given by $4x^2 + kxy + y^2 = 0$ is four times the other, then k=

A. 25

B. 5

C. -5

D. ± 5

Answer: D

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122. If the sum of slopes of the lines given by $3x^2 + kxy - 9y^2 = 0$ is 5 times their product, then k=

A. 10

B. -2

C. -10

D. -5

Answer: C

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123. The difference of the slopes of the lines given by $3x^2 - 4xy + y^2 = 0$ is

A. 1

B. 2

C. 3

D. 4

Answer: B

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124. The slopes of the lines given by $12x^2 + bxy - y^2 = 0$ differ by 6, Then value of b is

A. 2

B. ± 2

C. ± 1

D. 1

Answer: C

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125. If slopes of lines represented by $kx^2 + 5xy + y^2 = 0$ differ by 1, then k=

A. 2

B. 3

C. 6

D. 8

Answer: C

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126. If the slopes of the lines represented by $3x^2 + kxy - y^2 = 0$ differ by 4, then k=

A. 2

B. -2

C. ± 2

D. 4

Answer: C

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127. If the slope of one of the lines given by $kx^2 + 4xy - y^2 = 0$ exceeds the slope of the other by 8, then k=

A. 4

B. 16

C. 48

D. 12

Answer: D

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128. If two lines represented by $x^2\left(\tan^2\theta+\cos^2\theta\right)-2xy\tan\theta+y^2\sin^2\theta=0$ make angles α, β with x-axis then

A. -2

B. 2

C. -4

D. 4

Answer: B

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129. The difference of the slopes of the lines represented by $x^2\left(\sec^2\theta - \sin^2\theta\right) - (2\tan\theta)xy + y^2\sin^2\theta = 0$

A. 1

B. 2

C. 3

D. 4

Answer: B

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130. If two lines represented by $x^2\left(\tan^2\theta+\cos^2\theta\right)-2xy\tan\theta+y^2\sin^2\theta=0$ make angles α, β with x-axis then

A. 0

B. 2

C. 3

D. $2\tan\theta$

Answer: B

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131. If $4ab = 3h^2$, then the ratio of the slopes of the lines represented by $ax^2 + 2hxy + by^2 = 0$ is

A. $\sqrt{3}:1$

B. $\sqrt{2}:1$

C. $1:3$

D. $2:1$

Answer: C

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132. The ratio of the slopes of the lines represented by $ax^2 + 2hxy + by^2 = 0$ is $2:3$, then $h^2 : ab =$

A. $6:5$

B. $5:6$

C. $24:25$

D. $25:24$

Answer: D

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133. If the slope of one of the lines represented by $ax^2 + 2hxy + by^2 = 0$ is square of the slope of the other line, then

A. $a^2b + ab^2 + 8h^3 + 6abh = 0$

B. $a^2b + ab^2 - 8h^3 + 6abh = 0$

C. $a^2b + ab^2 - 8h^3 - 6abh = 0$

D. $a^2b + ab^2 + 8h^3 - 6abh = 0$

Answer: D

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134. If the slope of one of the lines given by $3x^2 - 4xy + ky^2 = 0$ is 1, then k=

A. 3

B. -4

C. 1

D. -1

Answer: C

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135. If the slope of one of the line given by $2px^2 - 16xy + qy^2 = 0$ is 2, then the equation of the other line, is

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136. If $2x + y = 0$ is one of the lines given by $3x^2 + kxy + 2y^2 = 0$, then k=

A. $\frac{1}{2}$

B. $\frac{11}{2}$

C. $\frac{5}{2}$

D. $\frac{-11}{2}$

Answer: B

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137. Find k, if one of the lines given by $6x^2 + kxy + y^2 = 0$ is $2x + y = 0$.

A. 10

B. 2

C. 5

D. -5

Answer: C

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

A. 12

B. -12

C. 3

D. -3

Answer: D

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139. If the line $x + 2 = 0$ coincides with one of the lines represented by $x^2 + 2xy + 4y + k$, then k=

A. -4

B. 4

C. $\frac{-1}{4}$

D. $\frac{1}{4}$

Answer: A

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140. If the line $3x - 2y = 0$ coincide with one of the lines given by $ax^2 + 2hxy + by^2 = 0$, then

A. $4a + 12h + 9b = 0$

B. $4a + 12h - 9b = 0$

C. $4a - 12h + 9b = 0$

D. $4a - 12h - 9b = 0$

Answer: A

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141. If the line $4x + 5y = 0$ coincide with one of the lines given by $ax^2 + 2hxy + by^2 = 0$, then

A. $25a + 40h + 16b = 0$

B. $25a + 40h - 16b = 0$

C. $25a - 40h + 16b = 0$

D. $25a - 40h - 9b = 0$

Answer: C

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142. If the line $4x - 5y = 0$ coincide with one of the lines given by $ax^2 + 2hxy + by^2 = 0$, then

A. $25a - 40h - 9b = 0$

B. $25a + 40h - 16b = 0$

C. $25a - 40h + 16b = 0$

D. $25a + 40h + 16b = 0$

Answer: B

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143. If one of the lines given by $kx^2 - 5xy - 3y^2 = 0$ is perpendicular to the line $x - 2y + 3 = 0$, then k=

A. 2

B. 3

C. $\frac{11}{2}$

D. $\frac{2}{3}$

Answer: A

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144. If one of the lines given by $3x^2 - kxy + 5y^2 = 0$ is perpendicular to the line 5x+3y=0`, then k=

A. 24

B. -3

C. -8

D. 8

Answer: D

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145. If one of the lines given by $ax^2 + 2hxy + by^2 = 0$ is perpendicular to $px + qy = 0$, show that $ap^2 + 2hpq + bq^2 = 0$

A. $ap^2 - 2hpq + bq^2 = 0$

B. $ap^2 + 2hpq + bq^2 = 0$

C. $aq^2 - 2hpq + bp^2 = 0$

D. $aq^2 + 2hpq + bp^2 = 0$

Answer: B

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146. If the line $3x + y = 0$ is perpendicular to one of the lines represented by $ax^2 + 2hxy + by^2 = 0$, then

A. $9a - 6h - b = 0$

B. $9a + 6h - b = 0$

C. $9a - 6h + b = 0$

D. $9a + 6h + b = 0$

Answer: D

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147. If two lines $ax^2 + 2hxy + by^2 = 0$ make equal angles with a co-ordinate axis, then

A. $ab = \pm 1$

B. $a = b$

C. $a = -b$

D. $a = \pm b$

Answer: D

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148. If the line given by $ax^2 + 2hxy + by^2 = 0$ are equally inclined to the co-ordinate axes, then

A. $h = 0$

B. $a + b = 0$

C. $h^2 - ab = 0$

D. $h = a$

Answer: A

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149. If one of the lines of $ax^2 + 2hxy + by^2 = 0$ bisects the angle between the axes, in the first quadrant, then

A. $(a+b)^2 = 2h$

B. $(a-b)^2 = 2h$

C. $(a+b)^2 = 4h^2$

D. $(a-b)^2 = 4h^2$

Answer: C

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150. If one of the lines given by $kx^2 + xy - y^2 = 0$ bisects the angle between the co-ordinate axes, then k=

A. $1, -1$

B. $0, 1$

C. $0, -2$

D. $0, 2$

Answer: C

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151. If one of the lines given by $kx^2 + 2hxy + by^2 = 0$ bisects the angle between the axes in the first qaudrant, then

A. $(a+b)^2 = 2h^2$

B. $(a+b)^2 = 4h^2$

C. $h^2 - ab = 0$

D. $h^2 + ab = 0$

Answer: B

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152. If one of the lines given by $kx^2 + 2hxy + by^2 = 0$ bisects the angle between the axes in the first qaudrant, then

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153. If the pair of lines $x^2 + 2xy + ay^2 = 0$ and $ax^2 + 2xy + y^2 = 0$ have exactly one line in common, then a =

A. $(ab' + a'b)^2 = 4(ah' + a'h)(b'h + ah')$

B. $(ab' + a'b)^2 = 2(ah' + a'h)(b'h + ah')$

C. $(ab' - a'b)^2 = 4(ah' - a'h)(b'h - bh')$

D. $(ab' - a'b)^2 = 2(ah' - a'h)(b'h - bh')$

Answer: C

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154. If the pair of lines $x^2 + 2xy + ay^2 = 0$ and $ax^2 + 2xy + y^2 = 0$ have exactly one line in common, then a =

A. $a^2 + a + 1 = 0$

B. $a^2 - a - 1 = 0$

C. $a^2 + a - 1 = 0$

D. $a^2 - a + 1 = 0$

Answer: C

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155. If the pair of lines $3x^2 - 5xy + ky^2 = 0$ and $6x^2 - xy - 5y^2 = 0$ have one line in common, then k=

A. $2, \frac{25}{4}$

B. $-2, \frac{25}{4}$

C. $2, \frac{-25}{4}$

D. $-2, -\frac{25}{4}$

Answer: C

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156. If the pairs of lines $x^2 + 2xy + ay^2 = 0$ and $ax^2 + 2xy + y^2 = 0$ have exactly one line in common, then the joint equation of the other two lines is given by $3x^2 + 8xy - 3y^2 = 0$ $3x^2 + 10xy + 3y^2 = 0$ $y^2 + 2xy - 3x^2 = 0$ $x^2 + 2xy - 3y^2 = 0$

A. $3x^2 + 10xy + 3y^2 = 0$

B. $3x^2 - 10xy + 3y^2 = 0$

C. $3x^2 + 10xy - 3y^2 = 0$

D. $3x^2 - 10xy - 3y^2 = 0$

Answer: A

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157. The angle between the lines $xy = 0$ is

A. 45°

B. 30°

C. 90°

D. 180°

Answer: C

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158. Find the angle between the lines represented by $3x^2 + 4xy - 3y^2 = 0$

A. 30°

B. 60°

C. 45°

D. 90°

Answer: D

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159. The acute angle θ between the lines represented by $x^2 - 4xy + y^2 = 0$ is

A. 30°

B. 60°

C. 45°

D. 90°

Answer: C

Watch Video Solution

160. The acute angle θ between the lines represented by $3x^2 - 4\sqrt{3}xy + 3y^2 = 0$ is

A. 30°

B. 60°

C. 45°

D. 90°

Answer: A

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161. The acute angle θ between the lines represented by $2x^2 + 7xy + 3y^2 = 0$ is

A. 30°

B. 60°

C. 45°

D. 90°

Answer: B

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162. Find the measure of the acute angle between the lines represented by $\left(a^2-3b^2\right)x^2+8abxy+\left(b^2-3a^2\right)y^2=0.$

A. 30°

B. 60°

C. 45°

D. 90°

Answer: C

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163. The acute angle θ between the lines given by $3y^2 = x(7y - 2x)$ is

A. 30°

B. 60°

C. 45°

D. 90°

Answer: B

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164. The acute angle θ between the lines represented by $3x^2 + 2xy - y^2 = 0$ is

A. $\tan^{-1}\left(\frac{1}{2}\right)$

B. $\tan^{-1}\left(\frac{3}{2}\right)$

C. $\tan^{-1}\left(\frac{2}{3}\right)$

D. $\tan^{-1} 2$

Answer: D

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165. The acute angle θ between the lines represented by $2x^2 - 6xy + y^2 = 0$ is

A. $\tan^{-1}\left(\frac{\sqrt{7}}{2}\right)$

B. $\tan^{-1}\left(\frac{2\sqrt{7}}{3}\right)$

C. $\tan^{-1}\left(\frac{3\sqrt{7}}{2}\right)$

D. $\tan^{-1}\left(\frac{2\sqrt{7}}{3}\right)$

Answer: B

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166. The acute angle θ between the lines represented by $4x^2 + 5xy + y^2 = 0$ is

A. $\tan^{-1}\left(\frac{1}{5}\right)$

B. $\tan^{-1}\left(\frac{1}{3}\right)$

C. $\tan^{-1}\left(\frac{3}{5}\right)$

D. $\tan^{-1}\left(\frac{5}{3}\right)$

Answer: C

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167. The angle between the lines $ay^2 - \left(1 + \lambda^2\right)xy - ax^2 = 0$ is same as the angle between the line:

A. $xy = 0$

B. $5x^2 + 2xy - 3y^2 = 0$

C. $5x^2 + 16xy + 5y^2 = 0$

D. $x^2 - 2xy - 3y^2 = 0$

Answer: A

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168. The acute angle between the lines given by $(\sin^2\theta - 1)x^2 - (\cos^2\theta)xy + (\cos^2\theta)y^2 = 0$ is

A. 30°

B. 60°

C. 45°

D. 90°

Answer: D

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169. The acute angle between the lines given by $x^2 + 2(\cos ec\theta)xy + y^2 = 0$ is

A. α

B. 90°

C. $90^\circ - \alpha$

D. $90^\circ + \alpha$

Answer: C

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170. The acute angle between the lines given by $x^2 + 2(\cot\theta)xy + y^2 = 0$ is

A. 0°

B. 60°

C. 90°

D. $\tan^{-1}\left(\cos ec\alpha\sqrt{\cos 2\alpha}\right)$

Answer: D

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171. The angle between the pair of lines represented by $\left(\sin^2\alpha\right)\left(x^2+y^2\right)=(x\cos\alpha-y\sin\alpha)^2$ is

A. α

B. 2α

C. $-\alpha$

D. -2α

Answer: B

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172. If the angle θ is acute, then the angle between the pair of lines given by $(\cos\theta - \sin\theta)x^2 + 2(\cos\theta)xy + (\cos\theta + \sin\theta)y^2 = 0$ is

A. θ

B. 2θ

C. $\frac{\theta}{2}$

D. $\frac{\theta}{3}$

Answer: A

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173. If the angle between the lines given by $(\tan^2 A)x^2 - kxy - y^2 = 0$ is 2A, then k=

A. 0

B. 1

C. 2

D. $\tan A$

Answer: A

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174. If θ is the acute angle between the lines represented by $kx^2 - 4xy + y^2 = 0$ and $\tan\theta = \frac{1}{2}$, then k=

A. $-21, \ -3$

B. $-21, 3$

C. $21, \ -3$

D. $21, 3$

Answer: B

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175. If the angle between the lines given by $6x^2 + xy + ky^2 = 0$ is 45°, then k=

A. $1, 35$

B. $-1, 35$

C. $1, \ -35$

D. $-1, \ -35$

Answer: D

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176. If the angle between the lines given by $x^2 - 2kxy + y^2 = 0$ is 60°, then k=

A. $\pm\sqrt{3}$

B. $\pm\sqrt{2}$

C. ± 2

D. ± 1

Answer: C

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177. If θ_1 and θ_2 are the acute angle between the lines given by $3x^2 - 7xy + 4y^2 = 0$ and $6x^2 - 5xy + y^2 = 0$, then

A. $\theta_1 = \theta_2$

B. $\theta_1 = 2\theta_2$

C. $\theta_2 = 2\theta_1$

D. $2\theta_2 = 3\theta_1$

Answer: A

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178. If the angle between the lines given by $ax^2 + 2hxy + by^2 = 0$ is equal to the angle between lines given by $2x^2 - 5xy + 3y^2 = 0$, then

A. $100\left(h^2 - ab\right) = (a + b)^2$

B. $100\left(h^2 - ab\right) = (a - b)^2$

C. $25\left(h^2 - ab\right) = (a + b)^2$

D. $25\left(h^2 - ab\right) = (a - b)^2$

Answer: A

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179. If the acute angle between the lines $ax^2 + 2hxy + by^2 = 0$ is congruent to the acute angle between the lines $3x^2 - 7xy + 4y^2 = 0$, then

A. $4\left(h^2 - ab\right) = (a + b)^2$

B. $7\left(h^2 - ab\right) = (a + b)^2$

C. $49\left(h^2 - ab\right) = (a + b)^2$

D. $196\left(h^2 - ab\right) = (a + b)^2$

Answer: D

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180. If $x^2 + 2hxy + y^2 = 0$ represents the equation of the straight lines through the origin which make an angle α with the straight line $y + x = 0$ $sec2\alpha = h\ \cos\alpha\ = \sqrt{\frac{(1+h)}{(2h)}}\ 2\sin\alpha$ $= \sqrt{\frac{(1+h)}{h}}$ (d) $\cot\alpha\ = \sqrt{\frac{(1+h)}{(h-1)}}$

A. $\sin 2\alpha$

B. $\cos 2\alpha$

C. $\cos ec2\alpha$

D. $\sec 2\alpha$

Answer: D

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181. The joint equation of pair of lines passing through the origin and making an angle of 45° with the line $3x + y = 0$ is

A. $x^2 - 2\cos ec2\alpha xy + y^2 = 0$

B. $x^2 + 2\cos ec2\alpha xy + y^2 = 0$

C. $x^2 - 2\sec 2\alpha xy + y^2 = 0$

D. $x^2 + 2\sec 2\alpha xy + y^2 = 0$

Answer: D

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182. The equation of the pair of straight lines, each of which makes an angle α with the line $y = x$ is

A. $x^2 - 2xy + y^2 = 0$

B. $x^2 - 2\cos ec\alpha xy + y^2 = 0$

C. $x^2 - \sec \alpha xy + y^2 = 0$

D. $x^2 - 2\sec 2\alpha xy + y^2 = 0$

Answer: D

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183. The joint equation of pair of lines passing through the origin and making an angle of 45° with the line $3x + y = 0$ is

A. $x^2 + 3xy + y^2 = 0$

B. $2x^2 + 3xy + y^2 = 0$

C. $2x^2 + 3xy - 2y^2 = 0$

D. $3x^2 + 2xy - 2y^2 = 0$

Answer: C

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184. The joint equation of pair of lines through the origin and making an angle of $\frac{\pi}{6}$ with the line $3x + y - 6 = 0$ is

A. $3x^2 - 12xy - 13y^2 = 0$

B. $3x^2 + 12xy - 3y^2 = 0$

C. $3x^2 - 12xy - 3y^2 = 0$

D. $3x^2 + 12xy - 13y^2 = 0$

Answer: B

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185. Find the joint equaiton of the pair of the lines through the origin each of which is making an angle of 30° with the line $3x + 2y - 11 = 0$.

A. $23x^2 + 48xy + 3y^2 = 0$

B. $3x^2 + 48xy + 23y^2 = 0$

C. $23x^2 + 24xy + 3y^2 = 0$

D. $3x^2 + 24xy + 23y^2 = 0$

Answer: A

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186. Joint equation of two lines through the origin each making angle of 60° with line $x - y = 0$, is

A. $x^2 - 4xy + y^2 = 0$

B. $x^2 + 4xy + y^2 = 0$

C. $x^2 - 3xy + y^2 = 0$

D. $x^2 + 3xy + y^2 = 0$

Answer: B

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187. Joint equation of two lines, through the origin, each making an angle of 30° with the Y-axis is

A. $3x^2 - y^2 = 0$

B. $x^2 - 3y^2 = 0$

C. $3x^2 + y^2 = 0$

D. $x^2 + 3y^2 = 0$

Answer: A

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188. Find the joint equation of the pair of lines through the origin and making an equilateral triangle with the line x = 3.

A. $x^2 + 3y^2 = 0$

B. $x^2 - 3y^2 = 0$

C. $3x^2 + y^2 = 0$

D. $3x^2 - y^2 = 0$

Answer: B

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189. Find the joint equation of the pair of lines through the origin and making an equilateral triangle with the line x = 3.

A. $x^2 + 3y^2 = 0$

B. $x^2 - 3y^2 = 0$

C. $3x^2 + y^2 = 0$

D. $3x^2 - y^2 = 0$

Answer: D

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190. The joint equation of pair of lines through the origin and making an equilateral triangle with the line x+y=10, is

A. $x^2 - 4xy + y^2 = 0$

B. $x^2 + 4xy + y^2 = 0$

C. $x^2 - 2xy + y^2 = 0$

D. $x^2 + 2xy + y^2 = 0$

Answer: A

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191. The joint equation of pair of lines through the origin and making an equilateral triangle with the line $3x + 4y = 5$, is

A. $39x^2 + 48xy + 11y^2 = 0$

B. $39x^2 - 48xy + 11y^2 = 0$

C. $39x^2 + 96xy + 11y^2 = 0$

D. $39x^2 - 96xy + 11y^2 = 0$

Answer: D

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192. If the slope of one of the lines given by $ax^2 + 2hxy + by^2 = 0$ is 5 times the other, then

A. $-2h$

B. $2h$

C. $-4h^2$

D. $4h^2$

Answer: D

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193. The line $x + y = \sqrt{6},$ forms an equilateral triangle with the lines $x^2 - 4xy + y^2 = 0,$ The perimeter of the triangle is :

A. $x^2 - 4xy + y^2 = 0$

B. $x^2 + 4xy + y^2 = 0$

C. $x^2 - 2xy + y^2 = 0$

D. $x^2 + 2xy + y^2 = 0$

Answer: A

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194. The line $x + y = \sqrt{6},$ forms an equilateral triangle with the lines $x^2 - 4xy + y^2 = 0,$ The perimeter of the triangle is :

A. $2\sqrt{3}$ sq.units

B. $\sqrt{3}$sq.units

C. $\frac{2}{\sqrt{3}}$ sq.units

D. $\frac{1}{\sqrt{3}}$ sq. units

Answer: B

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195. The line $x + y = \sqrt{6},$ forms an equilateral triangle with the lines $x^2 - 4xy + y^2 = 0,$ The perimeter of the triangle is :

A. $3\sqrt{3}$units

B. 3 units

C. 2 units

D. 6 units

Answer: D

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196. The line $3x - 4y + 5 = 0$ and $3(3y + 4x)^2 - (3x - 4y)^2 = 0$ forms a triangle which is (i) isosceles (ii) Equilateral (iii) Right Angled Triangle (iv) Right Angled isosceles

A. an equilateral

B. a right angled isosceles

C. a right angled with one angle 30°

D. an isosceles with base angl 30°

Answer: A

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197. If the lines $kx^2 + 6xy + 2y^2 = 0$ and $x + 3y = 9$ form an isosceles triangle, then k=

A. -8

B. 8

C. 6

D. -6

Answer: D

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198. Triangle formed by $x^2 - 3y^2 = 0$ and $x = 4$ is

A. an equilateral

B. an isosceles

C. a right angled

D. a scalene

Answer: A

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199. The triangle formed by the lines $10x^2 + 21xy - 10y^2 = 0$ and $7x + 3y = 4$ I s

A. an equilateral

B. an isosceles with base angl 30°

C. a right angled with one angle 30°

D. a right angled isoscels

Answer: D

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200. the area formed by the lines $x^2 - y^2 = 0$ and $x + 8 = 0$ is

A. 8 sq.units

B. 16 sq.units

C. 32 sq.units

D. 64 sq.units

Answer: D

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201. Show that the lines $x^2 - 4xy + y^2 = 0$ and $x + y = 10$ contain the sides of an equilateral triangle.

A. $\frac{100}{\sqrt{3}}$ sq.units

B. $\frac{75}{\sqrt{3}}$ sq.units

C. $\frac{50}{\sqrt{3}}$ sq.units

D. $\frac{25}{\sqrt{3}}$ sq.units

Answer: C

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202. Show that the lines $x^2 - 4xy + y^2 = 0$ and $x + y = 1$ form an equilateral triangle and find its area.

A. $\frac{1}{\sqrt{2}}$ sq.units

B. $\frac{1}{\sqrt{3}}$ sq.units

C. $\frac{2}{\sqrt{3}}$ sq.units

D. $\frac{\sqrt{3}}{2}$ sq.units

Answer: D

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203. The coordinates of the orthocentre of the triangle formedby the lines $2x^2 - 3xy + y^2 = 0$ and $x + y = 1$ are

A. $\frac{\sqrt{13}}{6}$ sq.units

B. $\frac{\sqrt{13}}{4}$ sq.units

C. $\frac{\sqrt{13}}{2}$ sq.units

D. $\frac{\sqrt{13}}{5}$ sq.units

Answer: A

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204. The area of the triangle formed by the lines $3x^2 - 4\sqrt{2}xy + y^2 = 0$ and $x + \sqrt{2}y + 7 = 0$ I s

A. $\frac{49\sqrt{5}}{3}$ sq.units

B. $\frac{98\sqrt{5}}{3}$ sq.units

C. $\frac{49\sqrt{5}}{15}$ sq.units

D. $\frac{98\sqrt{5}}{15}$ sq.units

Answer: C

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205. If $a+b=2h$, then the area of the triangle formed by the lines $ax^2+2hxy+by^2=0$ and the line $x-y+2=0$, in sq. units is

A. $\left|\frac{a^2+b^2}{a-b}\right|$

B. $\left|\frac{a^2+b^2}{a+b}\right|$

C. $\left|\frac{a-b}{a+b}\right|$

D. $\left|\frac{a-b}{a+b}\right|$

Answer: C

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206. The length of each perpendicular side of an isoscele right angled triangle formed by $4x^2 + 6xy - 4y^2 = 0$ and $x - 3y + 7 = 0$ is

A. $\frac{7}{\sqrt{5}}$

B. $\frac{4}{\sqrt{5}}$

C. $\frac{3}{\sqrt{5}}$

D. $\frac{2}{\sqrt{5}}$

Answer: A

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207. Show that the straight lines $x^2 + 4xy + y^2 = 0$ and the line x-y=4 form an equilateral triangle .

A. $\frac{4}{\sqrt{3}}$ sq.units

B. $\frac{2}{\sqrt{3}}$ sq.units

C. $\frac{16}{\sqrt{3}}$ sq.unts

D. $\frac{8}{\sqrt{3}}$ sq.units

Answer: D

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208. Show that straight lines $\left(A^2-3b^2\right)x^2+8ABxy\left(b^2-3A^2\right)y^2=0$ form with the line $Ax+By+C=0$ an equilateral triangle of area $\frac{C^2}{\sqrt{3(A^2+B^2)}}$.

A. $\sqrt{3}$

B. $2\sqrt{3}$

C. 3

D. 12

Answer: A

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209. The area of triangle (in sq units) formed by the lines $x^2 - 4y^2 = 0$ and $x = a,$ is

A. $2a^2$ sq.units

B. $\frac{a^2}{2}$ sq. units

C. $\frac{\sqrt{3}a^2}{2}$ sq.units

D. $\frac{2a^2}{\sqrt{3}}$ sq.units

Answer: B

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210. If the area of the triangle formed by the pair of lines $8x^2 - 6xy + y^2 = 0$ and the line $2x + 3y = a$ is 7 then $a =$

A. 49

B. 14

C. 112

D. 28

Answer: D

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211. The joint equation of pair of lines which bisects angle between the lines given by $x^2 + 3xy + y^2 = 0$ is

A. $3x^2 + 2xy + 3y^2 = 0$

B. $3x^2 - 2xy - 3y^2 = 0$

C. $3x^2 - 2xy + y^2 = 0$

D. $3x^2 - 2xy + 3y^2 = 0$

Answer: C

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212. The joint equation of bisectors of the angles between the lines given by $5x^2 + 6xy - y^2 = 0$, is

A. $x^2 + 2xy + y^2 = 0$

B. $x^2 + 2xy - y^2 = 0$

C. $x^2 - 2xy + y^2 = 0$

D. $x^2 - 2xy - y^2 = 0$

Answer: D

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213. If the lines $x^2 + 2hxy - y^2 = 0$ bisect the angle between the lines $2x^2 + 10xy - y^2 = 0$ then $h =$

A. $\frac{3}{10}$

B. $\frac{-3}{10}$

C. $\frac{3}{5}$

D. $\frac{-3}{5}$

Answer: B

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214. If $7x^2 - kxy - 7y^2 = 0$ represents the joint equation of the bisectors of the angles between the lines given by $2x^2 - 7xy + 4y^2 = 0$, then k=

A. 4

B. -4

C. 2

D. -2

Answer: A

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215. The pair of lines $h\left(x^2-y^2\right)+pxy=0$ bisects the angle between the pair of lines $ax^2+2hxy+by^2=0$, then p=

A. $a+b$

B. $-(a+b)$

C. $a-b$

D. $-(a-b)$

Answer: D

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216. If the two pairs of line $x^2 - 2mxy - y^2 = 0$ and $x^2 - 2nxy - y^2 = 0$ are such that one of them represent the bisector of the angles between the other, then: (A) mn + 1 = 0 (B) mn - 1 = 0 (C) 1/m + 1/n = 0 (D) 1/m -1/n = 0

A. $mn = -1$

B. $mn = 1$

C. $\frac{1}{m}+\frac{1}{n}=0$

D. $\frac{1}{m}-\frac{1}{n}=0$

Answer: A

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217. If one of the lines of $my^2+\left(1-m^2\right)xy-mx^2=0$ is a bisector of the angle between the lines $xy=0$, then m is

A. 2

B. -2

C. $\frac{-1}{2}$

D. 1

Answer: D

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218. The product of lenghts of the perpendicular from point (2, 3) on the lines given by $2x^2 + 6xy - y^2 = 0$ is

A. $\frac{7}{9\sqrt{5}}$

B. $\frac{7}{3\sqrt{5}}$

C. $\frac{7\sqrt{5}}{9}$

D. $\frac{7\sqrt{5}}{3}$

Answer: D

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219. The product of legths of the perpendicular from point (4, 1) on the lines given by $3x^2 - 4xy - y^2 = 0$ is

A. $\frac{31\sqrt{2}}{4}$

B. $\frac{31\sqrt{2}}{8}$

C. $\frac{31}{4}$

D. $\frac{31}{8}$

Answer: B

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220. The equation of the bisectors of angle between the lines $x^2 - 4xy + y^2 = 0$ is

A. $x + y = 0$

B. $x - y = 0$

C. $7x + 8y = 0$

D. $7x - 8y = 0$

Answer: B

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221. ΔOAB is formed by the lines $x^2 - 4xy + y^2 = 0$ and the line AB. The equation of line AB is $2x + 3y - 1 = 0$.Find the equation of the median of the triangle drawn from the origin.

A. $x + y = 0$

B. $x - y = 0$

C. $7x + y = 0$

D. $7x - 8y = 0$

Answer: D

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222. 9.y If two sides of a triangle are represented by $x^2 \_ 7xy + 6y^2 = 0$ and the centroid is (1,0) then the equation of third side is

A. $2x - 7y + 3 = 0$

B. $2x + 7y - 3 = 0$

C. $2x - 7y - 3 = 0$

D. $2x + 7y + 3 = 0$

Answer: C

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

A. $(-1, 1)$

B. $(0, 0)$

C. $(1, 0)$

D. $(0, 1)$

Answer: B

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224. Orthocentre of the triangle formed by the lines $3x^2 + 8xy - y^2 = 0$ and $x + 2y - 3 = 0$ is

A. $\left(\frac{3}{5}, \frac{6}{5}\right)$

B. $\left(\frac{6}{5}, \frac{3}{5}\right)$

C. $\left(\frac{-6}{5}, \frac{-12}{5}\right)$

D. $\left(\frac{12}{5}, \frac{6}{5}\right)$

Answer: C

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

A. $\left(\frac{-1}{3}, \frac{1}{3}\right.$

B. $\left(\frac{1}{3}, \frac{-1}{3}\right)$

C. $\left(\frac{1}{3}, \frac{1}{3}\right)$

D. $(3, 3)$

Answer: C

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226. The coordinates of the orthocentre of the triangle formedby the lines $2x^2 - 3xy + y^2 = 0$ and $x + y = 1$ are

A. $\left(\frac{35}{36}, \frac{25}{36}\right)$

B. $\left(\frac{25}{36}, \frac{35}{36}\right)$

C. $\left(\frac{35}{36}, \frac{25}{18}\right)$

D. $\left(\frac{25}{18}, \frac{35}{36}\right)$

Answer: C

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227. The orthocentre of the triangle formed by the lines $xy = 0$ and $x + y = 1$ is

A. $(0, 0)$

B. $(1, 0)$

C. $(0, 1)$

D. $\left(\frac{1}{2}, \frac{1}{2}\right)$

Answer: D

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228. The diagonal of the rectangle formed by the lines $x^2 - 7x + 6 = 0$ and $y^2 - 14y + 40 = 0$ is

A. $6x - 5y - 14 = 0$

B. $6x - 5y + 14 = 0$

C. $5x - 6y = 0$

D. $5x + 6y = 0$

Answer: B

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229. If pairs of opposite sides of a quadrilateral are $x^2 - 7x + 6 = 0$ and $y^2 - 14y + 40 = 0$ then equations of its diagonals are

A. $36x^2 - 25y^2 - 252x - 350y + 784 = 0$

B. $36x^2 + 25y^2 - 252x - 350y - 784 = 0$

C. $36x^2 - 25y^2 - 252x + 350y - 784 = 0$

D. $36x^2 - 25y^2 + 252x + 350y - 784 = 0$

Answer: C

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230. If the lines represented by $2x^2 - 5xy + 2y^2 = 0$ be the sides of a parallelogram and the line $5x + 2y = 1$ be one of its diagonal. Find the equation of the other diagonal, and area of the parallelogram .

A. $\frac{1}{72}$ sq.units

B. $\frac{1}{54}$ sq.units

C. $\frac{1}{36}$ sq.units

D. $\frac{1}{18}$ sq.units

Answer: C

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231. The centre of circle inscribed in a square formed by lines $x^2 - 8x + 12 = 0 and y^2 - 14y + 45 = 0$ is $(4, 7)$ $(7, 4)$ $(9, 4)$ $(4, 9)$

A. $\left(1, \frac{5}{2}\right)$

B. $\left(3, \frac{9}{2}\right)$

C. $(4, 7)$

D. $(7, 4)$

Answer: C

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232. The angle between the pair of lines $xy - 6x + 5y - 30 = 0$

A. 30°

B. 60°

C. 45°

D. 90°

Answer: D

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233. The angle between the pair of lines $3(x-4)^2+4\sqrt{3}(x-4)(y+2)-2(y+2)^2=0$ is

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234. The angle between the pair of lines $(x-3)^2+(x-3)(y-4)-2(y-4)^2=0$ is

A. $\tan^{-1}\left(2\sqrt{2}\right)$

B. $\tan^{-1}\left(2\sqrt{3}\right)$

C. $\tan^{-1}3$

D. $\tan^{-1}(-3)$

Answer: C

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235. The acute angle between the line represented by $9x^2 - 6xy + y^2 + 18x - 6y + 8 = 0$ is

A. 30°

B. 60°

C. 45°

D. 90°

Answer: D

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236. The acute angle between the line represented by $2x^2 + xy - y^2 + x + 4y - 3 = 0$ is

A. $\tan^{-1} 3$

B. $\tan^{-1} 5$

C. $\tan^{-1}\left(2\sqrt{3}\right)$

D. $\tan^{-1}\left(2\sqrt{2}\right)$

Answer: A

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237. The acute angle between the line represented by $2x^2 - xy - 3y^2 - 6x + 19y - 20 = 0$ is

A. $\tan^{-1}(-5)$

B. $\tan^{-1}(5)$

C. $\tan^{-1}\left(\frac{5}{2}\right)$

D. $\tan^{-1}\left(\frac{5}{4}\right)$

Answer: B

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238. The acute angle between the line represented by $x^2 - 6xy + 5y^2 + 10x - 4y + 9 = 0$ is

A. $\tan^{-1}\left(\frac{3}{2}\right)$

B. $\tan^{-1}\left(\frac{3}{4}\right)$

C. $\tan^{-1}\left(\frac{2}{3}\right)$

D. $\tan^{-1}\left(\frac{4}{3}\right)$

Answer: C

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239. The angle between the pair of lines $2x^2 + 5xy + 2y^2 - 3x - 3y + 1 = 0$ is

A. $\tan^{-1}\left(\frac{4}{5}\right)$

B. $\sin^{-1}\left(\frac{4}{5}\right)$

C. $\cos^{-1}\left(\frac{4}{5}\right)$

D. $\tan^{-1}\left(\frac{3}{4}\right)$

Answer: C

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240. The angle between the pair of lines $2x^2 + 4xy - 2y^2 + 4x + 8y + 1 = 0$ is

A. 45°

B. 90°

C. 30°

D. 60°

Answer: B

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241. The equation

$$x^2 - 3xy + \lambda y^2 + 3x - 5y + 2 = 0, \qquad \lambda \in R,$$

represents a pair of straight lines. If θ is the angle between these lines, then $\cos ec^2\theta =$

A. 10

B. 9

C. 1

D. 5

Answer: A

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242. The acute angle between the line represented by $9x^2 - 6xy + y^2 + 18x - 6y + 8 = 0$ is

A. parallel

B. perpendicular

C. intersecting

D. intersecting and perpendicular

Answer: A

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243. The acute angle between the line represented by $x^2 - 6xy + 5y^2 + 10x - 4y + 9 = 0$ is

A. $(2, 1)$

B. $(1, 2)$

C. $(2, -1)$

D. $(-1, 2)$

Answer: B

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244. The point of intersection of the lines represented by $2x^2 - xy - 3y^2 - 6x + 19y - 20 = 0$ is

A. $\left(\frac{14}{25}, \frac{11}{25}\right)$

B. $\left(\frac{11}{25}, \frac{14}{25}\right)$

C. $\left(\frac{14}{5}, \frac{11}{5}\right)$

D. $\left(\frac{11}{5}, \frac{14}{5}\right)$

Answer: D

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245. The point of intersection of the lines represented by $2x^2 + xy - y^2 + x + 4y - 3 = 0$ is

A. $\left(\frac{-2}{3}, \frac{5}{3}\right)$

B. $\left(\frac{2}{3}, \frac{-5}{3}\right)$

C. $\left(\frac{5}{3}, \frac{-2}{3}\right)$

D. $\left(\frac{-5}{3}, \frac{2}{3}\right)$

Answer: A

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246. The point of intersection of the lines given by $6x^2 + xy - 40y^2 - 35x - 83y + 11 = 0$ is

A. $(-3, -1)$

B. $(-3, 1)$

C. $(3, -1)$

D. $(3, 1)$

Answer: C

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247. The point of intersection of the lines represented by $(x-3)^2+(x-3)(y-4)-2(y-4)^2=0$ is

A. $(4, 3)$

B. $(-4, -3)$

C. $(3, 4)$

D. $(-3, -4)$

Answer: C

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248. If $\lambda x^2 - 5xy + 6y^2 + x - 3y = 0$ represents a pair of staight lines, then their point of intersection is:

A. $(-3, -1)$

B. $(-3, 1)$

C. $(3, -1)$

D. $(3, 1)$

Answer: A

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249. If $(1, k)$ is the point of intersection of the lines given by $2x^2 + 5xy + 3y^2 + 6x + 7y + 4 = 0$, then k=

A. -2

B. -1

C. 1

D. 2

Answer: A

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250. If the lines $x^2 - y^2 - 2x + 2y = 0$ and $x + 2y + k = 0$ are concurrent, then k=

A. -1

B. -3

C. 1

D. 3

Answer: B

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251. If the lines $2x^2 - 5xy + 3y^2 + 8x - 9y + 6 = 0$ and $kx - y - 5 = 0$ are concurrent, then k=

A. -9

B. 9

C. -3

D. 3

Answer: D

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252. The point of intersection of lines represented by $2x^2 + 4xy - 2y^2 + 4x + 8y + 1 = 0$

A. $\left(\frac{-3}{2}, \frac{-1}{2}\right)$

B. $\left(\frac{-3}{2}, \frac{1}{2}\right)$

C. $\left(\frac{3}{2}, \frac{-1}{2}\right)$

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

Answer: B

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

A. $\frac{1}{\sqrt{10}}$

B. $\frac{2}{\sqrt{10}}$

C. $\frac{6}{\sqrt{10}}$

D. $\frac{2}{\sqrt{90}}$

Answer: B

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254. The distance between the parallel lines given by $x^2 + 2\sqrt{2}xy + 2y^2 + 4x + 4\sqrt{2}y + 1 = 0$ is

A. 2

B. $2\sqrt{3}$

C. $\frac{1}{2}$

D. $\frac{1}{2\sqrt{3}}$

Answer: A

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255. The distance between the pair of parallel lines

$x^2 + 2xy + y^2 - 8ax - 8ay - 9a^2 = 0$ is $25\sqrt{2}$

then $a =$

A. $5a$

B. $10a$

C. $2\sqrt{5}a$

D. $5\sqrt{2}a$

Answer: D

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256. If the distance between two parallel lines given by $2x^2 + 4xy + 2y^2 + 2kx - 3y + 12 = 0$ is $\frac{5}{\sqrt{2}}$, then find the value of k

A. 5

B. 7

C. 1

D. 9

Answer: B

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257. The distance between the lines given by $(x-2y)^2+k(x-2y)=0$ is 3, then k=

A. $\pm 6\sqrt{5}$

B. $\pm 3\sqrt{5}$

C. $\pm 2\sqrt{5}$

D. $\pm 9\sqrt{5}$

Answer: B

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258. Select and write the correct answer from the alternatives in each of the following :

If an equation hxy $+gx+fy+c=0$ represents a pair of lines, then .....

A. $fg=ch$

B. $gh=cf$

C. $fh=cg$

D. $hf=-cg$

Answer: A

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259. If the equation $ax^2 + by^2 + cx + xy = 0$ represents a pair of line, then

A. $a + b = 0$

B. $a + b - c = 0$

C. $a + b = 0, c = 0$

D. $a + b + c = 2$

Answer: C

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260. If the equation $ay^2 + bxy + ex + dy = 0$ represents a pair of line, then

A. $e = 0, a = b$

B. $e = 0, bd = ac$

C. $e = 0, d = e$

D. $e = 0, be = ad$

Answer: B

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261. If the equation

$Ax^2 + 2Bxy + Cy^2 + Dx + Ey + F = 0$

represents a pair of lines, then $B^2 - AC =$

A. 0

B. > 0

C. < 0

D. $\neq 0$ or $= 0$

Answer: D

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262. If $kxy + 10x + 6y + 4 = 0$ represents a pair of lines, then $k =$

A. 0

B. -15

C. 5

D. 15

Answer: D

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263. If the equation $4x^2 + ky^2 + 8xy - 9 = 0$ represents a pair of line, then k=

A. -4

B. 4

C. -9

D. 9

Answer: B

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264. If the equation $kx^2 - y^2 + 4x - y = 0$ represents a pair of line, then k=

A. 4

B. -4

C. 16

D. -16

Answer: C

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265. If the equation $3x^2 + 3y^2 + 10xy + 16y + k = 0$ represents a pair of line, then k=

A. -16

B. 192

C. -12

D. 12

Answer: C

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266. If the equation $x^2 - y^2 - x - ky - 2 = 0$ represents a pair of line, then k=

A. ± 3

B. ± 1

C. $\pm 2\sqrt{2}$

D. $\pm \sqrt{3}$

Answer: A

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267. If the equation $2x^2 + 4xy - 2y^2 + 4x + 8y + k = 0$ represents a pair of line, then k=

A. 1

B. -1

C. 8

D. -8

Answer: A

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268. If the equation $x^2 + 3xy + 2y^2 + x - y + k = 0$ represents a pair of line, then k=

A. -12

B. -6

C. 6

D. 12

Answer: B

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269. The value of k so that the equation

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

represents a pair of lines is -2 (b) 2 (c) 7 (d) -7

A. 1

B. 2

C. 3

D. 4

Answer: B

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270. If the equation $3x^2 + xy - y^2 - 3x + 6y + k = 0$ represents a pair of straight lines, then the value of k, is

A. 4

B. -4

C. 9

D. -9

Answer: D

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271. If the equation $2x^2 - 3xy + y^2 - kx + 5y + 6 = 0$ represents a pair of line, then k=

A. $7, 8$

B. $-7, -8$

C. $-7, 8$

D. $7, -8$

Answer: B

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272. If the equation $2x^2 + 8xy + py^2 + qx + 2y - 15 = 0$ represents a pair of parallel lines, then

A. $p = -8, q = -1$

B. $p = 8, q = -1$

C. $q = 8, q = 1$

D. $p = 8, q = 1$

Answer: D

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273. If $2x^2 + 4xy - py^2 + 4x + qy + 1 = 0$ represents a pair of mutually perpendicular lines then

A. $p = 2, q = 0, 4$

B. $p = 2, q = 0, -4$

C. $p = 2, q = 0, 8$

D. $p = 2, q = 0, -8$

Answer: C

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274. If the equation $px^2 - 8xy + 3y^2 + 14x + 2y + q = 0$ represents a pair of perpendicular lines, then

A. $p = -3, q = -8$

B. $p = 3, q = -8$

C. $p = -3, q = 8$

D. $p = 3, q = 8$

Answer: A

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275. If the equation $x^2 + py^2 + qy - a^2 = 0$ represents a pair of parallel lines, then

A. $p = -1, q = \pm 1$

B. $p = 1, q = \pm 1$

C. $p = -1, q = \pm a$

D. $p = 1, q = \pm a$

Answer: C

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276. O(0,0), A(1,2), B(3,4) are the vertices of ΔOAB. The joint equation of the altitude and median drawn from O is

A. $x^2 + 7xy - y^2 = 0$

B. $x^2 + 7xy + y^2 = 0$

C. $3x^2 - xy - 2y^2 = 0$

D. $3x^2 + xy - 2xy = 0$

Answer: D

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