MATHS

BOOKS - DEEPTI MATHS (TELUGU ENGLISH)

LOCUS

Solved Examples

1. If the distances from P to the points $(3, 4), (-3, 4)$ are in the ratio 3 : 2, then the locus of P is

A. $5x^2 + 5y^2 - 12x - 86y + 17 = 0$

B. $5x^2 + 5y^2 - 34x + 120y + 29 = 0$

C. $5x^2 + 5y^2 - 5x + y + 14 = 0$

D. $5x^2 + 5y^2 + 78x - 40y + 125 = 0$

Answer: D

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2. $A(2, 3), B(1, 5), C(-1, 2)$ are the three points. If P is a point moves such that $PA^2 + PB^2 = 2PC^2$, then the locus of P is

A. $10x - 8y + 29 = 0$

B. $10x + 8y - 29 = 0$

C. $10x + 8y + 29 = 0$

D. $10x - 8y - 29 = 0$

Answer: B

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3. $A(1, -1), B(5, 2)$ are two points. If a point P forms a triangle of area 5 sq. Unit with A, B then the locus of P is

A. $9x^2 + 24xy - 16y^2 + 42x + 56y - 51 = 0$

B. $9x^2 + 24xy - 16y^2 - 42x + 56y - 51 = 0$

C. $9x^2 - 24xy + 16y^2 - 42x + 56y - 51 = 0$

D. $9x^2 - 24xy + 16y^2 + 42x + 56y - 51 = 0$

Answer: C

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4. The locus of point of intersection of the lines $y + mx = \sqrt{a^2m^2 + b^2}$ and $my - x = \sqrt{a^2 + b^2m^2}$ is

A. $x^2 + y^2 = \frac{1}{a^2} + \frac{1}{b^2}$

B. $x^2 + y^2 = a^2 + b^2$

C. $x^2 - y^2 = a^2 - b^2$

D. $\frac{1}{x^2} + \frac{1}{y^2} = a^2 - b^2$

Answer: B

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5. From a point P, perpendiculars PL and PM are drawn upon X and Y axes respectively. If LM passes through a fixed point (x_1, y_1) then the locus of P is

A. $\frac{x_1}{x} - \frac{y_1}{y} = 1$

B. $\frac{x_1}{x} + \frac{y_1}{y} = 1$

C. $\frac{x}{x_1} - \frac{y}{y_1} = 1$

D. $\frac{x}{x_1} + \frac{y}{y_1} = 1$

Answer: B

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6. If the roots of the equation $\left(x_1^2 - a^2\right)m^2 - 2x_1y_1m + \left(y_1^2 + b^2\right) = 0, (a > b)$ are the slopes of two perpendicular lines intersecting at $P(x_1, y_1)$, then the locus of P is

A. $x^2 + y^2 = a^2 + b^2$

B. $x^2 + y^2 = a^2 - b^2$

C. $x^2 - y^2 = a^2 + b^2$

D. $x^2 - y^2 = a^2 - b^2$

Answer: B

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7. A lines passes through a fixed point (a, b). The locus of the foot of the perpendicualr on it from origin is

A. $x^2 + y^2 + ax + by = 0$

B. $x^2 + y^2 - ax - by = 0$

C. $x^2 + y^2 - ax + by = 0$

D. $x^2 + y^2 + ax - by = 0$

Answer: B

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Exercise 1 Multiple Choice Questions

1. The locus of the point which is at a distance 5 unit from $(-2, 3)$ is

A. $x^2 - y^2 + 4x - 6y + 12 = 0$

B. $x^2 + y^2 + 4x - 6y - 12 = 0$

C. $x^2 - y^2 + 4x - 6y - 12 = 0$

D. $x^2 + y^2 + 4x - 6y + 12 = 0$

Answer: B

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2. The locus of $P(x, y)$ such that its distance from $A(0, 0)$ is less then 5 units is

A. $x^2 + y^2 < 5$

B. $x^2 + y^2 < 10$

C. $x^2 + y^2 < 25$

D. $x^2 + y^2 < 20$

Answer: C

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3. The locus of the point which is at a distance 5 unit from x - axis is

A. $y^2 + 25 = 0$

B. $y^2 - 25 = 0$

C. $y + 25 = 0$

D. $y - 25 = 0$

Answer: B

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4. The locus of the point, for which the sum of the sqaures of distances from the coordinate axes is 25 is

A. $x^2 + y^2 = 25$

B. $x^2 + y^2 = 19$

C. $x^2 + y^2 = 32$

D. $x^2 + y^2 = 29$

Answer: A

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5. The locus of the point whose distances to the coordinates axes arc in the ratio $2:3$ is

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

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

C. $4x^2 - 16y^2 = 0$

D. $4x^2 - 9y^2 = 0$

Answer: D

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6. The locus of the point which is equidistant to the coordinate axes is `

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

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

C. $x + y = 0$

D. $x - y = 0$

Answer: B

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7. The equation of the locus of the point whose distance from x - axis is twice its distance from the y - axis, is

A. $y^2 = 4x^2$

B. $4y^2 = x^2$

C. $y = 3x$

D. $4x + y = 0$

Answer: A

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8. The equation to the locus of points equidistant from the points $(2, 3), (-2, 5)$ is

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

B. $2x - y - 1 = 0$

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

D. $2x + y + 1 = 0$

Answer: A

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9. If the equation of the locus of a point equidistant from the 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

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

B. $a_1^2 - a_2^2 + b_1^2 - b_2^2$

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

D. $\sqrt{a_1^2 + b_1^2 - a_2^2 - b_2^2}$

Answer: A

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10. The equation to the locus of a point P for which the distance from P to $(4, 0)$ is double the distance from P to x - axis is

A. $x^2 + 3y^2 + 8x + 16 = 0$

B. $x^2 + 3y^2 - 8x - 16 = 0$

C. $x^2 - 3y^2 + 8x - 16 = 0$

D. $x^2 - 3y^2 - 8x + 16 = 0$

Answer: D

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11. A point moves so that its distance from y - axis is half of its distance from the origin. The equation to the locus is

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

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

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

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

Answer: B

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12. The locus of P for which the distance from P to origin is double the distance from P to $(1, 2)$ is

A. $3x^2 + 3y^2 - 8x - 16y + 20 = 0$

B. $3x^2 + 3y^2 - 8x + 16y + 20 = 0$

C. $3x^2 - 3y^2 - 8x - 16y + 20 = 0$

D. $3x^2 - 3y^2 - 8x + 16y + 20 = 0$

Answer: A

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13. $A(-9,0), B(-1,0)$ are two points. If P is a point such that $PA:PB=3:1$, then the locus of P is

A. $x^2+y^2=9$

B. $x^2+y^2+9=0$

C. $x^2-y^2=9$

D. $x^2-y^2+9=0$

Answer: A

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14. The locus of the moving point P, such that $2PA=3PB$ where $A(0,0), B(4,-3)$ is

A. $5x^2+5y^2-72x+54y+225=0$

B. $5x^2+5y^2+72x-54y-225=0$

C. $3x^2+3y^2-70x+52y+225=0$

D. none of these

Answer: A

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15. $A(2, 3), B(3, -4)$ are two points. The locus of the point P such that $PA^2 + PB^2 = 10$ is

A. $x^2 - y^2 + 5x + y + 14 = 0$

B. $x^2 + y^2 - 5x + y - 14 = 0$

C. $x^2 - y^2 + 5x - y + 14 = 0$

D. $x^2 + y^2 - 5x + y + 14 = 0$

Answer: D

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16. If $A(a, 0), B(-a, 0)$, then the locus of the point P such that $PA^2 + PB^2 + 2c^2$ is

A. $x^2 + y^2 + a^2 - c^2 = 0$

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

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

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

Answer: B

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17. The point P moves such that the sum of the squares of its distances from two fixed points $A(a, 0)$ and $B(-a, 0)$ is constant and equal to $6a^2$. The locus of P is

A. $x^2 - y^2 = a^2$

B. $x^2 - y^2 = 2a^2$

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

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

Answer: C

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18. Sum of the sqaures of the distances from a point to $(c, 0)$ and $(-c, 0)$ is $4c^2$. Its locus is

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

B. $x^2 + y^2 = 4c^2$

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

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

Answer: C

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19. $A(1, 2), B(2, -3), C(-2, 3)$ are three points. If P is a point moves such that $PA^2 + PB^2 = 2PC^2$, then the locus of P is

A. $7x - 7y + 4 = 0$

B. $7x + 7y - 4 = 0$

C. $7x + 7y + 4 = 0$

D. $7x - 7y - 4 = 0$

Answer: A

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20. The ends of the hypertenuse of right angled triangle are $(0, 6), (6, 0)$. The locus of the third vertex is

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

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

C. $x^2 - y^2 - 6x - 6y = 0$

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

Answer: A

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21. $A(2, 3), B(-1, 1)$ are two points . If P is a point such that $\angle APB = 90^\circ$, then the locus of P is

A. $x^2 + y^2 - x - 4y + 1 = 0$

B. $x^2 + y^2 + x + 4y - 1 = 0$

C. $x^2 + y^2 - x + 4y - 1 = 0$

D. $x^2 + y^2 + x - 4y + 1 = 0$

Answer: A

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22. The locus of P such that area of ΔPAB is 12 square units where $A = (2, 3)$ and $B = (-4, 5)$ is

A. $x^2 + 6xy + 9y^2 + 22x + 66y + 23 = 0$

B. $x^2 - 6xy + 9y^2 + 22x66y + 23 = 0$

C. $x^2 + 6xy + 9y^2 - 22x - 66y - 23 = 0$

D. $x^2 - 6xy + 9y^2 - 23x - 66y - 23 = 0$

Answer: C

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23. $O(0, 0), A(6, 0), B(0, 4)$ are three points. If P is a point such that the area of the quadrilateral PABC is 10 sq. Unit, then the locus of P is

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

B. $y^2 - 9x^2 = 0$

C. $9x^2 - y^2 = 0$

D. $9y^2 - x^2 = 0$

Answer: A

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24. $A(5, 3), B(3, -2), C(2, -1)$ are three points. If P is a point such that the area of the quadrilateral PABC is 10 sq. unit, then the locus of P is

A. $16x^2 + 24xy - 9y^2 + 144x + 108y - 76 = 0$

B. $16x^2 - 24xy + 9y^2 - 144x + 108y - 76 = 0$

C. $16x^2 + 24xy + 9y^2 - 144x + 108y + 76 = 0$

D. $16x^2 - 24xy - 9y^2 + 144x + 108y + 76 = 0$

Answer: B

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25. The locus of a point such that the sum of its distances from the points $(0, 2)$ and $(0, -2)$ is 6 is

A. $9x^2 - 5y^2 = 45$

B. $5x^2 + 9y^2 = 45$

C. $9x^2 + 5y^2 = 45$

D. $5x^2 - 9y^2 = 45$

Answer: C

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26. $A(2, 3), B(2, -3)$ are two points. The equation to the locus of P such that $PA + PB = 8$ is

A. $16x^2 + 7y^2 - 64x - 48 = 0$

B. $16x^2 + 7y^2 - 64x + 48 = 0$

C. $16x^2 - 7y^2 + 64x - 48 = 0$

D. $16x^2 - 7y^2 + 64x + 48 = 0$

Answer: A

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27. $A(a, 0), B(-a, 0)$ are two points. The equation to the locus of P such that $PA + PB = c$ is

A. $4(c^2 - 4a^2)x^2 + 4c^2y^2 = c^2(c^2 - 4a^2)$

B. $4(c^2 + 4a^2)x^2 - 4c^2y^2 = c^2(c^2 + 4a^2)$

C. $2(c^2 + 2a^2)x^2 + 2c^2y^2 = c^2(c^2 + 4a^2)$

D. $2(c^2 - 4a^2)x^2 - 4c^2y^2 = c^2(c^2 - 4a^2)$

Answer: A

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28. $A(ae, 0), B(-ae, 0)$ are two points. The equation to the locus of P such that $PA - PB = 2a$ is

A. $\frac{x^2}{a^2} + \frac{y^2}{a^2(1-e^2)} = 1$

B. $\frac{x^2}{a^2} - \frac{y^2}{a^2(1-e^2)} = 1$

C. $\frac{x^2}{a^2} + \frac{y^2}{a^2(1+e^2)} = 1$

D. $\frac{x^2}{a^2} - \frac{y^2}{a^2(1+e^2)} = 1$

Answer: A

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29. $A(2, 3), B(-2, 3)$ are two points. The locus of P which moves such that $PA - PB = 4$ is

A. $y + 3 = 0$

B. $y - 3 = 0$

C. $y^2 + 3 = 0$

D. $y^2 - 3 = 0$

Answer: B

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30. $A(0, 4), B(0, -4)$ are two points. The locus of P which moves such that $|AP - PB| = 6$ is

A. $9x^2 - 7y^2 + 63 = 0$

B. $9x^2 + 7y^2 - 63 = 0$

C. $9x^2 + 7y^2 + 63 = 0$

D. $9x^2 - 7y^2 - 63 = 0$

Answer: A

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31. The perimeter of a triangle is 20 and the points $(-2, 3)$ and $(-2, 3)$ are two of the vertices of it. The locus of the third vertex is

A. $\frac{(x+2)^2}{40} + \frac{y^2}{49} = 1$

B. $\frac{(x-2)^2}{40} + \frac{y^2}{49} = 1$

C. $\frac{(x+2)^2}{49} + \frac{y^2}{40} = 1$

D. none

Answer: A

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32. The locus represented by $x = \frac{a}{2}\left(t + \frac{1}{t}\right), y = \frac{a}{2}\left(t - \frac{1}{t}\right)$ is

A. $x^2 + y^2 = a^2$

B. $x^2 - y^2 = a^2$

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

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

Answer: B

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33. The locus of the point $(a\cos\theta, b\sin\theta)$ where $0 \leq \theta < 2\pi$ is

A. $\sqrt{x} + \sqrt{v} = \sqrt{ab}$

B. $\sqrt{\frac{x}{a}} + \sqrt{\frac{y}{b}} = 1$

C. $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

D. $\frac{x}{a} + \frac{y}{b} = 1$

Answer: C

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34. The locus of the point $(a\cos h\theta, b\sin h\theta)$ is

A. $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$

B. $\sqrt{\frac{x}{a}}+\sqrt{\frac{y}{b}}=1$

C. $\frac{x^2}{a^2}-\frac{y^2}{b^2}=1$

D. $\sqrt{\frac{x}{a}}-\sqrt{\frac{y}{b}}=1$

Answer: C

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35. The locus of the point $(a\sec\theta, b\tan\theta)$ where $0 \leq \theta < 2\pi$ is

A. $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$

B. $\sqrt{\frac{x}{a}}+\sqrt{\frac{y}{b}}=1$

C. $\frac{x^2}{a^2}-\frac{y^2}{b^2}=1$

D. $\sqrt{\frac{x}{a}}-\sqrt{\frac{y}{b}}=1$

Answer: C

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36. The locus of the point $(a\cos\theta + b\sin\theta, a\sin\theta - b\cos\theta)$ where $0 \leq \theta < 2\pi$ is

A. $x^2 + y^2 = a^2 + b^2$

B. $\left(x^2 - y^2\right)^2 = 16xy$

C. $x^2 - y^2 = a^2 + b^2$

D. $x^2 - y^2 = a^2 - b^2$

Answer: A

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37. The locus of the point $(a\sec\theta + b\tan\theta, b\sec\theta + a\tan\theta)$ where $0 \leq \theta < 2\pi$ is

A. $x^2 + y^2 = a^2 + b^2$

B. $\left(x^2 - y^2\right)^2 = 16xy$

C. $x^2 - y^2 = a^2 + b^2$

D. $x^2 - y^2 = a^2 - b^2$

Answer: D

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38. The locus of the point $\left(a\cos^3\theta, b\sin^3\theta\right)$ where $0 \leq \theta < 2\pi$ is

A. $\left(x^2y\right)^{2/3} + \left(xy^2\right)^{2/3} = 1$

B. $\left(x^2y^2\right)^{2/3} + \left(xy^2\right)^{2/3} = 1$

C. $(x/a)^{2/3} + (y/b)^{2/3} = 1$

D. $\left(x^2/a\right)^{2/3} + \left(y^2/b\right)^{2/3} = 1$

Answer: C

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39. If a point $(x, y) = (\tan\theta + \sin\theta, \tan\theta - \sin\theta)$, then the locus of (x, y) is

A. $\left(x^2y\right)^{2/3} + \left(xy^2\right)^{2/3} = 1$

B. $x^2 - y^2 = 4xy$

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

D. $\left(x^2 - y^2\right)^2 = 16xy$

Answer: D

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40. The locus of the point $(\cot\theta + \cos\theta, \cot\theta - \cos\theta)$ where $0 \leq \theta < 2\pi$ is

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

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

C. $\left(x^2 + y^2\right)^2 = 16xy$

D. $\left(x^2 - y^2\right)^2 = 16xy$

Answer: D

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41. The locus of the point $(\cos ec\theta - \sin\theta, \sec\theta - \cos\theta)$ where $0 \leq \theta < 2\pi$ is

A. $\left(x^2 y\right)^{2/3} + \left(xy^2\right)^{2/3} = 1$

B. $\left(x^2 y^2\right)^{2/3} + \left(xy^2\right)^{2/3} = 1$

C. $(x/a)^{2/3} + (y/b)^{2/3} = 1$

D. $\left(x^2/a\right)^{2/3} + \left(y^2/b\right)^{2/3} = 1$

Answer: A

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42. The locus of the point represented by $x = 3(\cos t + \sin t), y = 2(\cos t - \sin t)$ is

A. $\frac{x^2}{9} + \frac{y^2}{4} = 1$

B. $\frac{x^2}{4} + \frac{y^2}{9} = 1$

C. $\frac{x^2}{18} + \frac{y^2}{8} = 1$

D. $\frac{x^2}{8} + \frac{y^2}{18} = 1$

Answer: C

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43. The locus of the point represent by $x = \cos^2 t, y = 2\sin t$ is

A. $y^2 = 4x$

B. $y^2 - 4x + 1$

C. $y^2 + 4x = 1$

D. $y^2 + 4x = 4$

Answer: D

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44. The locus of the represented by$x = t^2 + t + 1, y = t^2 - t + 1$ is

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

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

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

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

Answer: A

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45. The locus of the point represented by $x = 1 + 4\cos\theta, y = 2 + 3\sin\theta$ is

A. $9(x-1)^2 - 16(y-2)^2 = 1$

B. $9(x-1)^2 + 16(y-2)^2 = 144$

C. $16(x-1)^2 - 9(y-2)^2 = 1$

D. $16(x-1)^2 + 9(y-2)^2 = 144$

Answer: B

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46. The line joining $(5, 0)$ to $(10\cos\theta, 10\sin\theta)$ is divided internally in the ratio $2:3$ at P. the locus of P is

A. a pair of straight lines

B. a straight line

C. a circle

D. a parabola

Answer: C

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47. If a point P moves such that its distance from the point $A(1, 1)$ and the line $x + y + 2 = 0$ are equal then the locus of P is

A. a straight line

B. a pair of straight lines

C. a parabola

D. an ellipse

Answer: C

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48. the equation to the locus of a point which moves so that the sum of its distances from $(3, 0)$ and $(-3, 0)$ is less than 9 is

A. $20x^2 + 36y^2 < 405$

B. $2x^2 + 36y^2 > 405$

C. $36x^2 + 20y^2 < 405$

D. $36x^2 + 20y^2 > 405$

Answer: A

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49. If the sum of the distances of a point P from two perpendicular lines in a planes is 1, then the locus of P is a

A. rhombus

B. circle

C. straight line

D. pair of straight lines

Answer: A

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50. A straight rod of length 9 unit, slides with its ends A, B always on the x and y axes repectively. Then the locus of the centroid of ΔOAB is

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

B. $x^2 + y^2 = 9$

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

D. $x^2 + y^2 = 81$

Answer: B

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51. The ends of a rod of length l move on two mutually perpendicular lines. The locus of the point on the rod which divides it in the ratio 1 : 2 is

A. $9x^2 + 34y^2 = 2l^2$

B. $9x^2 - 34y^2 = l^2$

C. $9x^2 + 36y^2 = 4l^2$

D. None of these

Answer: C

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52. If $A(\cos\alpha, \sin\alpha), B(\sin\alpha - \cos\alpha), C(1, 2)$ are the vertices of a ΔABC, then the locus of its centroid is

A. $x^2 + y^2 - 2x - 4y + 1 = 0$

B. $3\left(x^2 + y^2\right) - 2x - 4y + 1 = 0$

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

D. None

Answer: B

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53. Locus of centroid of the triangle whose vertices are $(a\cos t, a\sin t), (b\sin t - b\cos t)$ and $(1, 0)$ where t is a parameter, is

A. $(3x-1)^2 + (3y)^2 = a^2 - b^2$

B. $(3x-1)^2 + (3y)^2 = a^2 + b^2$

C. $(3x+1)^2 + (3y)^2 = a^2 + b^2$

D. $(3x+1)^2 + (3y)^2 = a^2 - b^2$

Answer: B

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Exercise 2 Special Type Questions Set 1

1. I : The locus of the point for which the sum of the sqaures of distances from the coordinate axes is 25 is $x^2 + y^2 = 25$

II : The locus of the point whose distances to the coordinate axes are in the ratio $2:3$ is $4x^2 - 9y^2 = 0$

A. only I is true

B. only II is true

C. both I and II are true

D. neither I nor II are true

Answer: C

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2. I : If the distances from P to the points $(3, 4), (-3, 4)$ are in the ratio $3:2$, then the locus of P is $5x^2 + 5y^2 + 78x - 40y + 125 = 0$

II : $A(-9, 0), B(-1, 0)$ are two points. If P is a point such that $PA:PB = 3:1$, then the locus of P is $x^2 + y^2 = 9$

A. only I is true

B. only II is true

C. both I and II are true

D. neither I nor II are true

Answer: C

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3. I: Let $A(0, 0), B(\cos\alpha, \sin\alpha), C(\sin\alpha - \cos\alpha)$ are vertices of a triangle then the locus of the centroid of triangle is $9x^2 + 9y^2 = 4$.

II. The locus of the point $(a\cos\theta, b\sin\theta)$ is $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

A. only I is true

B. only II is true

C. both I and II are true

D. neither I nor II are true

Answer: B

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Set 2

1. If the equation of the locus of points equidistant from the points $(-2, 3), (6, -5)$ is $ax + by + c = 0$ then ascending order of a, b, c is

A. a, b, c

B. c, b, a

C. b, c, a

D. a, c, b

Answer: B

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2. If the locus of the point P such that $PA^2 + PB^2 = 10$ where $A(2, 3), B(3, -4)$ is $x^2 + y^2 + ax + by + c = 0$ then ascending order of a, b, c is

A. a, b, c

B. c, b, a

C. b, c, a

D. a, c, b

Answer: A

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3. If the locus of the point P such that are of ΔPAB is 12 sq unit where $A = (2, 3), B = (-4, 5)$ is $x^2 + 6xy + 9y^2 + ax + by + c = 0$ then ascending order of a, b, c is

A. a, b, c

B. c, b, a

C. b, c, a

D. a, c, b

Answer: C

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Set 3

1. Match the following

$I.$ Locus of a point which is equidistant from two fixed points is

$II.$ Locus of a point which is a constant distance from a point is

$III.$ The locus of the point whose distance from x -axis is twice that of f

$IV.$ A, B are two points. If $PA = k(> AB)$ then locus of P is

A. c, d, b, a

B. d, c, a, e

C. d, c, e, a

D. c, d, b, e

Answer: A

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2. Match the following

	Given condition
I.	The sum of the squares of distances from P to the coordinate axes is
II.	The distances to the coordinate axes from P are in the ratio $2:3$ res
III.	The square of whose distance from P to the origin is 4 times of its y
IV.	The distance from P to $(4, 0)$ is double the distance from P to the x

A. a, b, c, d

B. a, e, c, d

C. a, b, d, c

D. b, a, c, e

Answer: A

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3. Match the following

I.	The locus of the point $(at^2, 2at)$ is	(a) $xy =$
II.	The locus of the point $(ct, c/t)$ is	(b) $y^2 +$
III.	The locus of the point $(\cos^2 t, 2\sin t)$ is	(c) $x^2 +$
IV.	The locus of the point $(\cos t + \sin t, \cos t - \sin t)$ is	(d) $y^2 =$

A. a, c, b, d

B. a, b, c, d

C. a, b, d, c

D. d, a, b, c

Answer: D

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Set 4

1. A: The equation to the locus of points which are equidistant from the points $(-3, 2), (0, 4)$ is $6x + 4y - 3 = 0$.

R : The locus of points which are equidistant to A, B is perpendicular bisector of AB

A. A true, R true and R is correct explanation of A

B. A true, R true but R is not the correct explantion of A

C. A is true but R is false

D. A is false but R is true

Answer: A

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2. A : $A(0, 2), B(0, -2)$ and $PA + PB = 3$ the locus of P is an ellipse

R : Locus of a point, the sum of whose distances from two fixed points always constant (which is less than distance between the points) is an ellipse

A. A true, R true and R is correct explanation of A

B. A true, R true but R is not the correct explantion of A

C. A is true but R is false

D. A is false , R is false

Answer: D

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3. Assertion (A): The sum of the distances of a point from two perpendicular lines is 1, then its locus is a square

Reason (R): The locus of a point which is at a distance 'p' from the given point is a circle

A. A true, R true and R is correct explanation of A

B. A true, R true but R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: B

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4. A : If $A(4, 0), B(-4, 0)$ are two points and $PA - PB = 4$ then the locus of P is $3x^2 - y^2 = 12$

R : Let A, B be two points. If PA- PB = constant $k(<AB)$ then locus of P is hyperbola

A. A true , R true and R is correct explanation of A

B. A true, R true but R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is true.

Answer: A

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