

EXTRA PRACTICE — Exercises

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Unit IX – The Conic Sections

Part E – Solving Systems of Relations

Lesson 2 – Systems - Two Second Degree

Use algebraic methods to find the solution set for the following systems of equations. In addition, identify the conic section defined by each equation by showing the standard form, and interpret your solution in terms of these conic sections.

1. $x^2 + y^2 = 20$
 $xy = 8$

2. $x^2 = 2y + 10$
 $x^2 + y^2 = 25$

3. $\frac{x^2}{4} + \frac{y^2}{10} = 5$
 $2x^2 + 3y^2 = 84$

4. $x^2 + y^2 = 4$
 $4x^2 - 9y^2 = 36$

5. $x^2 - 4y^2 = 1$
 $x^2 - 1 = y^2$

EXTRA PRACTICE — Answer Key

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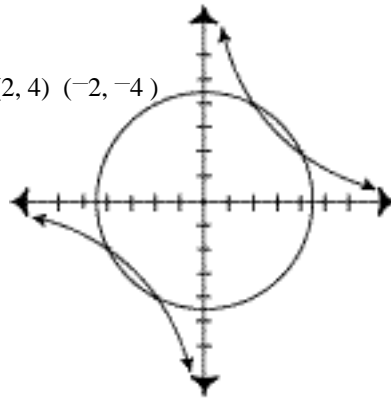
Unit IX – The Conic Sections

Part E – Solving Systems of Relations

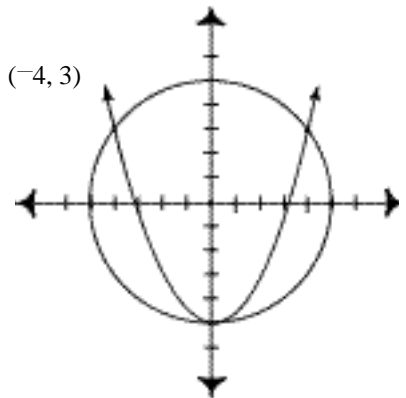
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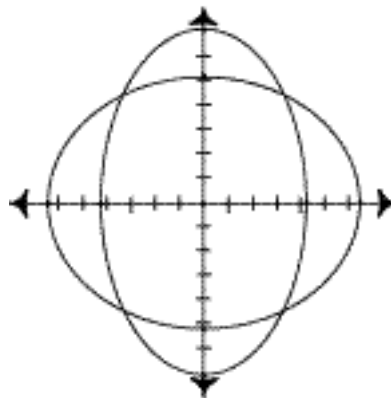
1. $(4, 2)$ $(-4, 2)$ and $(2, 4)$ $(-2, -4)$



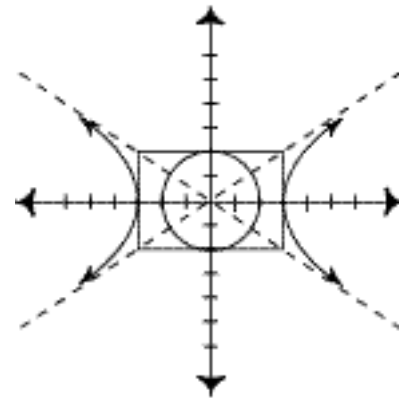
2. $(0, -5)$ and $(4, 3)$ $(-4, 3)$



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



4. No intersection point. Solution is a “complex” or “imaginary” or “not a real number”



5. $(1, 0)$ $(-1, 0)$

