

A P.I. R² Mini-Mystery

Who Killed Mr. V?

Directions: Solve each system of equations, then use your solutions to eliminate the suspects and solve the mystery.

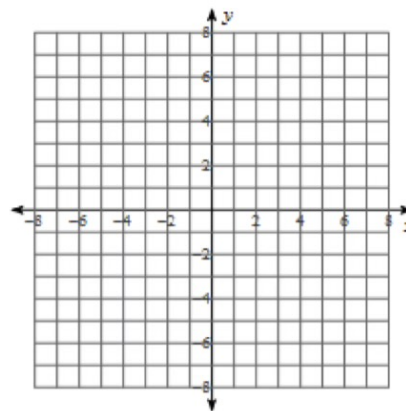
$\begin{cases} 2x + y - z = -4 \\ 3y + 4z = 32 \\ x - 2y + 3z = -15 \end{cases}$	<p>1. $x =$</p> <p>2. $y =$</p> <p>3. $z =$</p>
$\begin{cases} x - y + z = 13 \\ 2x + 3y - z = -26 \\ 3x - 2y + 2z = 27 \end{cases}$	<p>4. $x =$</p> <p>5. $y =$</p> <p>6. $z =$</p>
$\begin{cases} x + y + z = 1 \\ 3x - 2y + z = 24 \\ -2x - 3y - 2z = 7 \end{cases}$	<p>7. $x =$</p> <p>8. $y =$</p> <p>9. $z =$</p>
$\begin{cases} 3x - 2y + z = 36 \\ -4x - 3y - 2z = 15 \\ x + y + z = -7 \end{cases}$	<p>10. $x =$</p> <p>11. $y =$</p> <p>12. $z =$</p>
$\begin{cases} 2x - y + 3z = -1 \\ x + 2y + z = 24 \\ 3x - 2y + 4z = -10 \end{cases}$	<p>13. $x =$</p> <p>14. $y =$</p> <p>15. $z =$</p>

WHO?	
Ms. Scarlett	12
Mr. Green	8
Dr. Black	-7
Mrs. Brown	2
Mrs. White	-4
WHAT?	
Candlestick	7
Leadpipe	11
Wrench	1
Rope	5
Poison	-9
WHERE?	
Dining Room	9
Living Room	4
Bedroom	-11
Game Room	-2
Library	-5
Study	6
Media Room	-8
Kitchen	-1

IT WAS (WHO)	WITH A (WHAT)	IN THE (WHERE)
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Find the required information and graph the conic section:

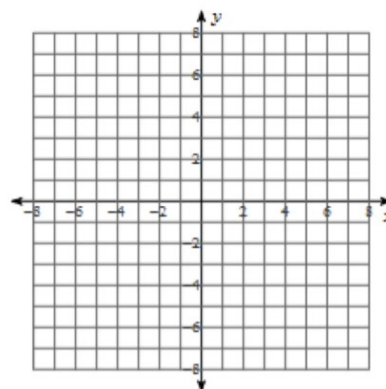
$$\frac{(x+2)^2}{25} + \frac{(y-4)^2}{4} = 1$$



Classify the conic section: _____ **Center:** _____

Vertices: _____ **Foci:** _____

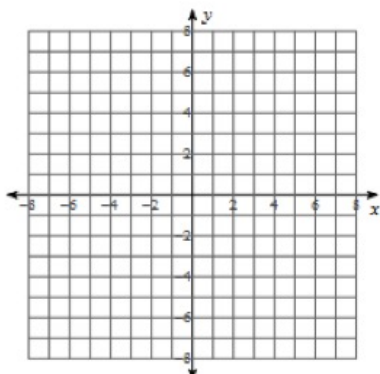
Find the required information and graph the conic section: $y = 2x^2 - 8x + 4$



Classify the conic section: _____ **Vertex:** _____

Focus: _____ **Directrix:** _____

Find the required information and graph: $7x^2 + 3y^2 - 42x + 6y - 39 = 0$

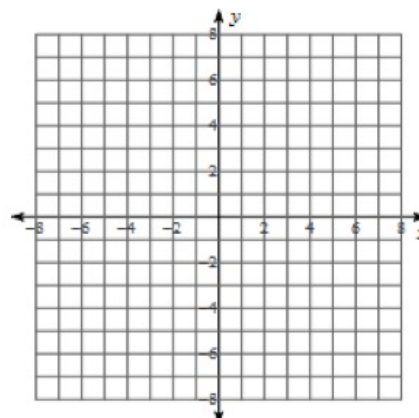


Classify the conic section: _____ **Center:** _____

Vertices: _____ **Foci:** _____

Find the required information and graph the conic section:

$$4y^2 + x - 32y + 68 = 0$$



Classify the conic section: _____ **Vertex:** _____

Focus: _____ **Directrix:** _____