

# Math Sheet

Name \_\_\_\_\_ Score \_\_\_\_\_ / 16 Teacher \_\_\_\_\_ Date \_\_\_\_\_

## Classifying Conic Sections

Classify each equation. The selected equation mode applies to this section.

1.  $\frac{(x-5)^2}{9} + \frac{(y+2)^2}{36} = 1$

Type: \_\_\_\_\_

2.  $(x-5)^2 + (y-4)^2 = 36$

Type: \_\_\_\_\_

3.  $y = 6(x+3)^2 + 2$

Type: \_\_\_\_\_

4.  $\frac{(y-2)^2}{9} - \frac{(x-1)^2}{36} = 1$

Type: \_\_\_\_\_

5.  $\frac{(x+3)^2}{25} + \frac{(y-4)^2}{16} = 1$

Type: \_\_\_\_\_

6.  $(x+5)^2 + (y+4)^2 = 25$

Type: \_\_\_\_\_

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## Classifying Conic Sections

Classify each general equation and write it in standard form.

7.  $-12x^2 - 3y^2 + 72x + 24y - 144 = 0$

Type: \_\_\_\_\_ Standard form: \_\_\_\_\_

8.  $-1x^2 - 1y^2 + 6x + 6y - 2 = 0$

Type: \_\_\_\_\_ Standard form: \_\_\_\_\_

9.  $-32x^2 + 2y^2 + 192x - 8y - 248 = 0$

Type: \_\_\_\_\_ Standard form: \_\_\_\_\_

10.  $6y^2 + 2x - 24y + 32 = 0$

Type: \_\_\_\_\_ Standard form: \_\_\_\_\_

11.  $-72x^2 - 50y^2 - 288x - 200y + 1312 = 0$

Type: \_\_\_\_\_ Standard form: \_\_\_\_\_

12.  $2x^2 + 2y^2 - 50 = 0$

Type: \_\_\_\_\_ Standard form: \_\_\_\_\_

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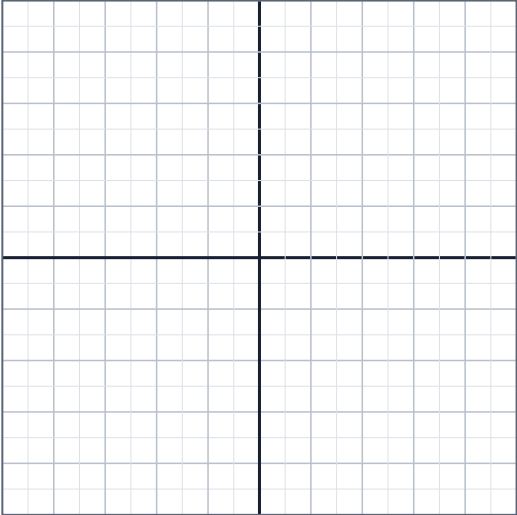
Classifying Conic Sections

Classify, write standard form, graph and give the named features. Each grid square is 1 unit.

13.

$50 \cdot x^2 + 8 \cdot y^2 - 200 \cdot x - 32 \cdot y + 32 = 0$

Standard form: \_\_\_\_\_



Type: \_\_\_\_\_

Center: \_\_\_\_\_

Vertices: \_\_\_\_\_

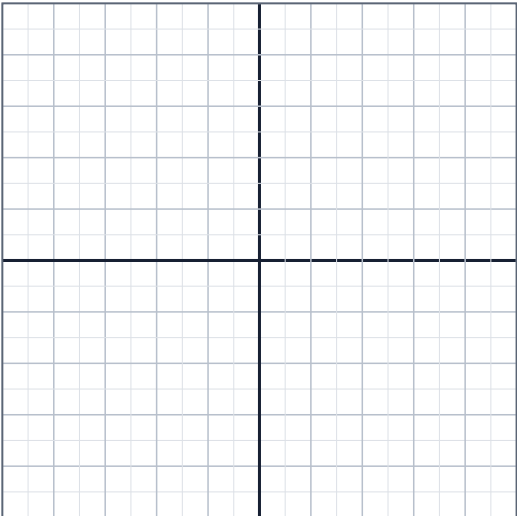
Foci: \_\_\_\_\_

Each square = 1 unit

14.

$4 \cdot y^2 - 1 \cdot x + 8 \cdot y + 3 = 0$

Standard form: \_\_\_\_\_



Type: \_\_\_\_\_

Vertex: \_\_\_\_\_

Focus: \_\_\_\_\_

Each square = 1 unit

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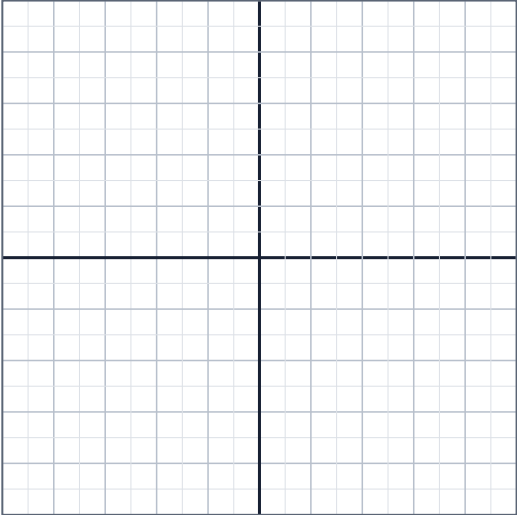
Classifying Conic Sections

Classify, write standard form, graph and give the named features. Each grid square is 1 unit.

15.

$2 \cdot x^2 + 2 \cdot y^2 + 4 \cdot x + 8 \cdot y + 2 = 0$

Standard form:



Type:

Center:

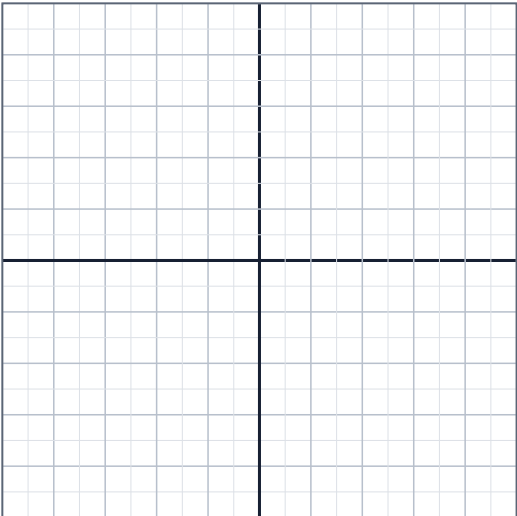
Radius:

Each square = 1 unit

16.

$8 \cdot x^2 - 8 \cdot y^2 + 32 \cdot x - 16 \cdot y + 56 = 0$

Standard form:



Type:

Center:

Vertices:

Foci:

Each square = 1 unit

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## Classifying Conic Sections

### Answer Key

Classify each equation. The selected equation mode applies to this section.

1.  $\frac{(x - 5)^2}{9} + \frac{(y + 2)^2}{36} = 1$

Type: ellipse

2.  $(x - 5)^2 + (y - 4)^2 = 36$

Type: circle

3.  $y = 6(x + 3)^2 + 2$

Type: parabola

4.  $\frac{(y - 2)^2}{9} - \frac{(x - 1)^2}{36} = 1$

Type: hyperbola

5.  $\frac{(x + 3)^2}{25} + \frac{(y - 4)^2}{16} = 1$

Type: ellipse

6.  $(x + 5)^2 + (y + 4)^2 = 25$

Type: circle

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## Classifying Conic Sections

### Answer Key

Classify each general equation and write it in standard form.

7.  $-12x^2 - 3y^2 + 72x + 24y - 144 = 0$

Type: ellipse

Standard form:  $\frac{(x - 3)^2}{1} + \frac{(y - 4)^2}{4} = 1$

8.  $-1x^2 - 1y^2 + 6x + 6y - 2 = 0$

Type: circle

Standard form:  $(x - 3)^2 + (y - 3)^2 = 16$

9.  $-32x^2 + 2y^2 + 192x - 8y - 248 = 0$

Type: hyperbola

Standard form:  $\frac{(x - 3)^2}{1} - \frac{(y - 2)^2}{16} = 1$

10.  $6y^2 + 2x - 24y + 32 = 0$

Type: parabola

Standard form:  $x = -3(y - 2)^2 - 4$

11.  $-72x^2 - 50y^2 - 288x - 200y + 1312 = 0$

Type: ellipse

Standard form:  $\frac{(x + 2)^2}{25} + \frac{(y + 2)^2}{36} = 1$

12.  $2x^2 + 2y^2 - 50 = 0$

Type: circle

Standard form:  $x^2 + y^2 = 25$

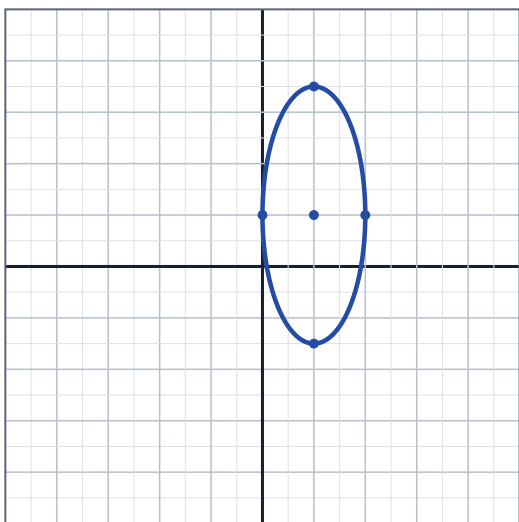
## Classifying Conic Sections

## Answer Key

Classify, write standard form, graph and give the named features. Each grid square is 1 unit.

13.  $50 \cdot x^2 + 8 \cdot y^2 - 200 \cdot x - 32 \cdot y + 32 = 0$

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



Each square = 1 unit

Type: ellipse

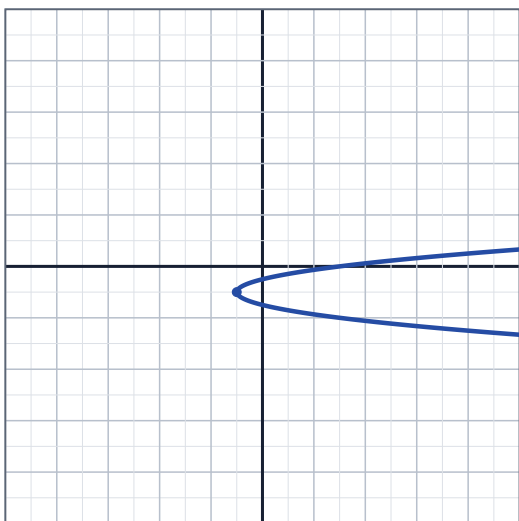
Center: (2,2)

Vertices: (2,7), (2,-3)

Foci:  $(2, 2 + \sqrt{21})$ ,  $(2, 2 - \sqrt{21})$ 

14.  $4 \cdot y^2 - 1 \cdot x + 8 \cdot y + 3 = 0$

Standard form:  $x = 4 \cdot (y + 1)^2 - 1$



Each square = 1 unit

Type: parabola

Vertex: (-1, -1)

Focus:  $(-\frac{15}{16}, -1)$

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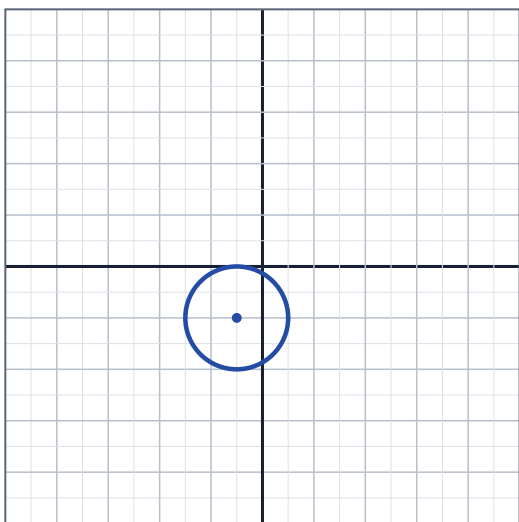
## Classifying Conic Sections

### Answer Key

Classify, write standard form, graph and give the named features. Each grid square is 1 unit.

15.  $2 \cdot x^2 + 2 \cdot y^2 + 4 \cdot x + 8 \cdot y + 2 = 0$

Standard form:  $(x + 1)^2 + (y + 2)^2 = 4$



Each square = 1 unit

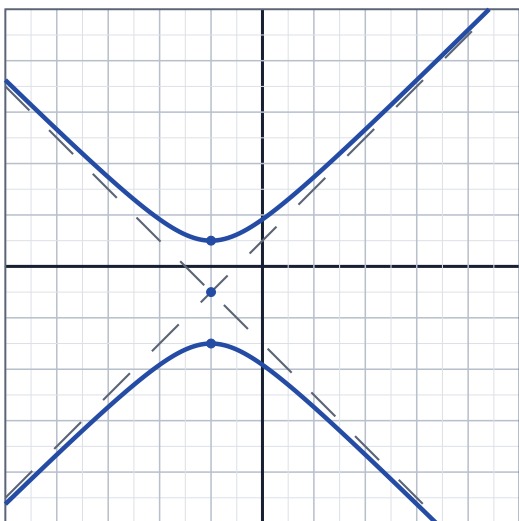
Type: circle

Center: (-1, -2)

Radius: 2

16.  $8 \cdot x^2 - 8 \cdot y^2 + 32 \cdot x - 16 \cdot y + 56 = 0$

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



Each square = 1 unit

Type: hyperbola

Center: (-2, -1)

Vertices: (-2, 1), (-2, -3)

Foci: (-2, -1 + 2√2), (-2, -1 - 2√2)