

## Algebra 2 - Chapter 10 Practice Test

- 1 Identify the vertex, focus, and directrix of the graph of  $y = \frac{1}{8}(x - 3)^2 - 5$ .
- A) vertex (3, -5), focus (3, -3), directrix at  $y = -7$   
B) vertex (-3, 5), focus (0, 2), directrix at  $y = 2$   
C) vertex (-3, -5), focus (3, -2), directrix at  $y = -7$   
D) vertex (3, 5), focus (0, -3), directrix at  $y = -2$
- 2 Identify the focus and the directrix of the graph of  $y = -\frac{1}{12}x^2$ .
- A) focus (0, -3), directrix at  $y = -3$       C) focus (0, -3), directrix at  $y = 3$   
B) focus (-3, 0), directrix at  $y = -3$       D) focus (-3, 0), directrix at  $y = 3$
- 3 Identify the vertex, focus and the directrix of the graph of  $x^2 - 8x - 28y - 124 = 0$ .
- A) vertex (4, 5), focus(4, 2), directrix at  $y = 2$   
B) vertex (-4, 5), focus(0, 7), directrix at  $y = 7$   
C) vertex (4, -5), focus(4, 2), directrix at  $y = -12$   
D) vertex (-4, -5), focus(4, -12), directrix at  $y = 2$
- 4 Write an equation of a circle with center (-5, -8) and radius 2.
- A)  $(x - 5)^2 + (y - 8)^2 = 2$       C)  $(x - 5)^2 + (y - 8)^2 = 4$   
B)  $(x + 5)^2 + (y + 8)^2 = 4$       D)  $(x + 5)^2 + (y + 8)^2 = 2$
- 5 Find the center and radius of the circle with equation  $(x - 5)^2 + (y + 6)^2 = 9$ .
- A) (5, -6); 3      C) (5, -6); 9  
B) (-5, 6); 9      D) (-5, 6); 3
- 6 Write an equation in standard form of an ellipse that has a vertex at (5, 0), a co-vertex at (0, -3), and is centered at the origin.
- A)  $\frac{x^2}{3} + \frac{y^2}{5} = 1$       C)  $\frac{x^2}{25} + \frac{y^2}{9} = 1$   
B)  $\frac{x^2}{9} + \frac{y^2}{25} = 1$       D)  $\frac{x^2}{5} + \frac{y^2}{3} = 1$
- 7 Find the foci of the ellipse with the equation  $\frac{x^2}{49} + \frac{y^2}{64} = 1$ .
- A) foci (0,  $\pm\sqrt{15}$ )      C) foci (0,  $\pm\sqrt{113}$ )  
B) foci ( $\pm\sqrt{15}$ , 0)      D) foci ( $\pm\sqrt{113}$ , 0)
- 8 Find the foci of the graph  $\frac{x^2}{25} - \frac{y^2}{16} = 1$ .
- A) ( $\pm\sqrt{41}$ , 0)      C) (0,  $\pm 3$ )  
B) ( $\pm 3$ , 0)      D) (0,  $\pm\sqrt{41}$ )

9 Write an equation of an ellipse with center  $(3, -3)$ , vertical major axis of length 12, and minor axis of length 6.

- A)  $\frac{(x+3)^2}{6} - \frac{(y-3)^2}{12} = 1$       C)  $\frac{(x+3)^2}{36} - \frac{(y-3)^2}{9} = 1$   
B)  $\frac{(x-3)^2}{12} + \frac{(y+3)^2}{6} = 1$       D)  $\frac{(x-3)^2}{9} + \frac{(y+3)^2}{36} = 1$

10 Identify the conic section. If it is a parabola, give the vertex. If it is a circle, give the center and radius. If it is an ellipse or a hyperbola, give the center and foci.

$$4x^2 + 7y^2 + 32x - 56y + 148 = 0$$

- A) ellipse with center  $(4, -4)$ , foci at  $(4 \pm \sqrt{3}, -4)$   
B) hyperbola with center  $(-4, -4)$ , foci at  $(4, -4 \pm \sqrt{3})$   
C) ellipse with center  $(-4, 4)$ , foci at  $(-4 \pm \sqrt{3}, 4)$   
D) hyperbola with center  $(4, 4)$ , foci at  $(-4, 4 \pm \sqrt{3})$

11 Identify the conic section. If it is a parabola, give the vertex. If it is a circle, give the center and radius. If it is an ellipse or a hyperbola, give the center and foci.

$$y^2 - 4x + 6y + 29 = 0$$

- A) parabola; vertex  $(-5, 3)$       C) parabola; vertex  $(5, 4)$   
B) parabola; vertex  $(5, -3)$       D) parabola; vertex  $(4, 3)$

12 Identify the conic section. If it is a parabola, give the vertex. If it is a circle, give the center and radius. If it is an ellipse or a hyperbola, give the center and foci.

$$11x^2 - 3y^2 - 88x + 18y + 116 = 0$$

- A) ellipse with center  $(4, -3)$ , foci at  $(4, -3 \pm \sqrt{14})$   
B) hyperbola with center  $(4, 3)$ , foci at  $(4 \pm \sqrt{14}, 3)$   
C) ellipse with center  $(-4, 3)$ , foci at  $(-4, 3 \pm \sqrt{14})$   
D) hyperbola with center  $(-4, -3)$ , foci at  $(-3 \pm \sqrt{14}, -4)$

13 Identify the conic section. If it is a parabola, give the vertex. If it is a circle, give the center and radius. If it is an ellipse or a hyperbola, give the center and foci.

$$x^2 + y^2 + 8x - 4y = -11$$

- A) circle; center  $(-4, 2)$ ; radius = 9      C) circle; center  $(-4, 2)$ ; radius = 3  
B) circle; center  $(4, -2)$ ; radius = 9      D) circle; center  $(4, -2)$ ; radius = 3

14 Which equation describes a circle?

- A)  $-2y^2 + 10x + 9y = -11$       C)  $5y^2 + 10y + 3x^2 - 4x - 2 = 0$   
B)  $-4x^2 + 10x - 4y^2 - 2y + 9 = 0$       D)  $-2x^2 + 10x - 4y^2 + 9y = 2$

15 Graph:  $(x+4)^2 + (y-7)^2 = 49$ .

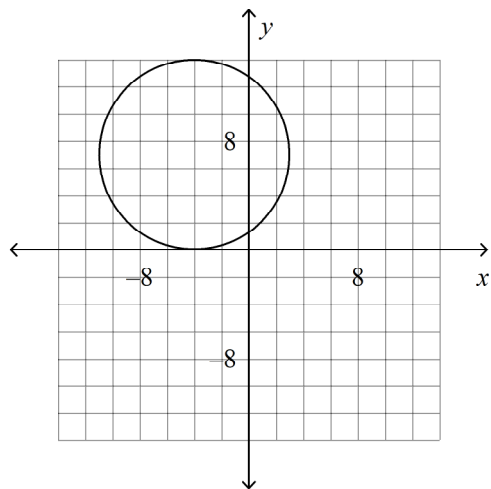
16 Graph:  $x^2 + 2y^2 = 16$

17 Graph:  $25x^2 - 4y^2 = 100$

18 Graph:  $x = (y+3)^2 - 1$ .

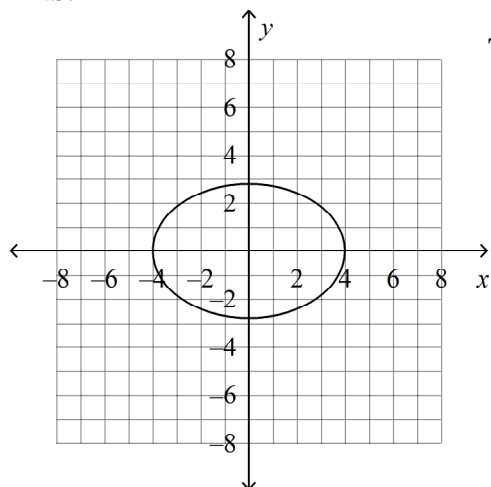
**Algebra 2 - Chapter 10 Practice Test  
Answer Section**

- |    |        |                 |
|----|--------|-----------------|
| 1  | ANS: A | STA: CA A2 16.0 |
| 2  | ANS: C | STA: CA A2 16.0 |
| 3  | ANS: C | STA: CA A2 16.0 |
| 4  | ANS: B | STA: CA A2 16.0 |
| 5  | ANS: A | STA: CA A2 16.0 |
| 6  | ANS: C | STA: CA A2 16.0 |
| 7  | ANS: A | STA: CA A2 16.0 |
| 8  | ANS: A | STA: CA A2 16.0 |
| 9  | ANS: D | STA: CA A2 17.0 |
| 10 | ANS: C | STA: CA A2 17.0 |
| 11 | ANS: B | STA: CA A2 17.0 |
| 12 | ANS: B | STA: CA A2 17.0 |
| 13 | ANS: C | STA: CA A2 17.0 |
| 14 | ANS: B | STA: CA A2 17.0 |
| 15 | ANS:   |                 |



STA: CA A2 16.0

16 ANS:

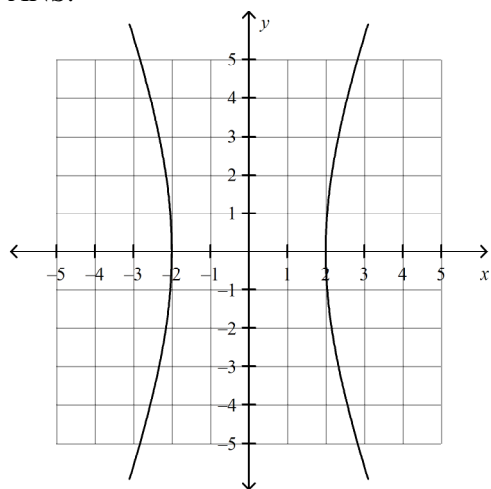


The graph is a circle. The center is at the origin. Every line through the

origin is a line of symmetry.

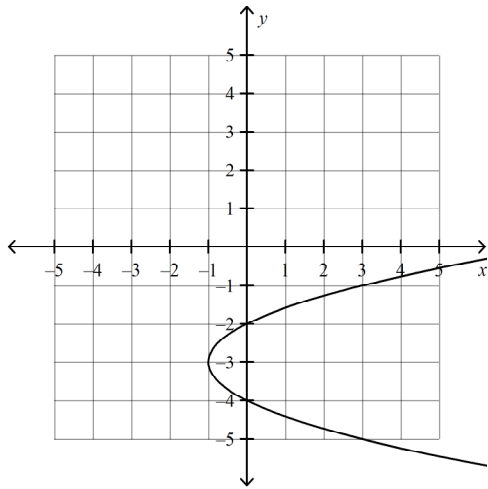
STA: CA A2 17.0

17 ANS:



STA: CA A2 16.0

18 ANS:



STA: CA A2 16.0