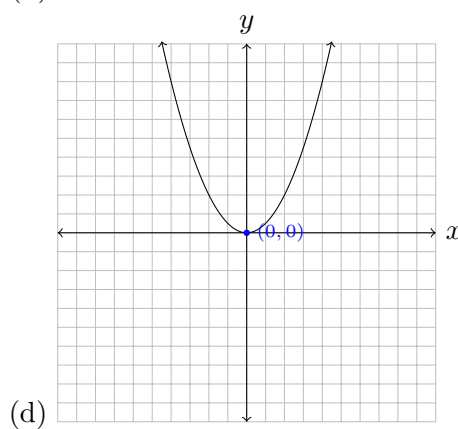
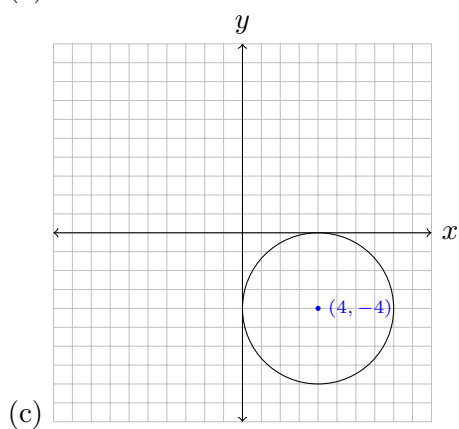
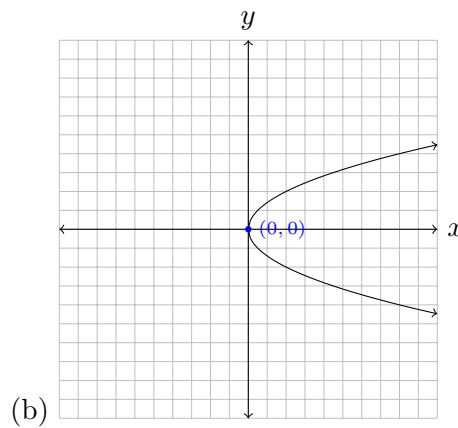
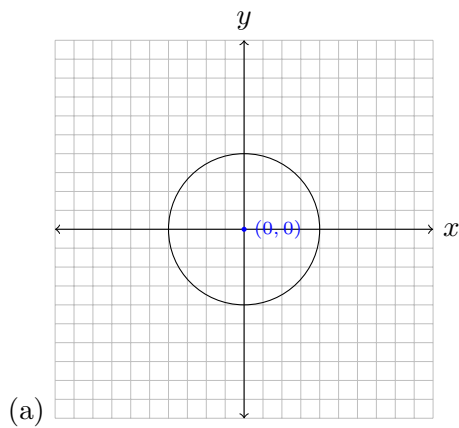


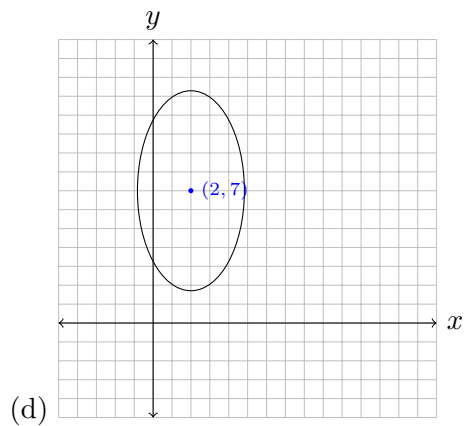
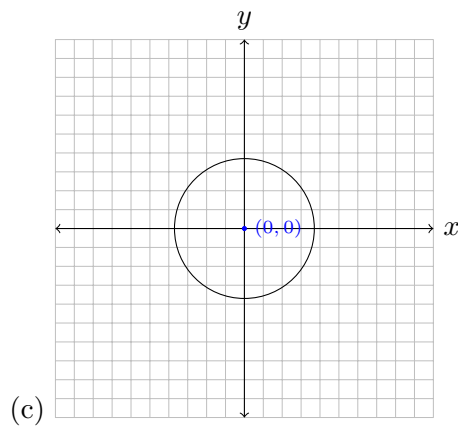
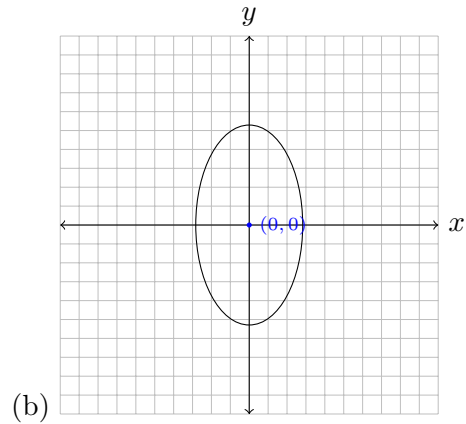
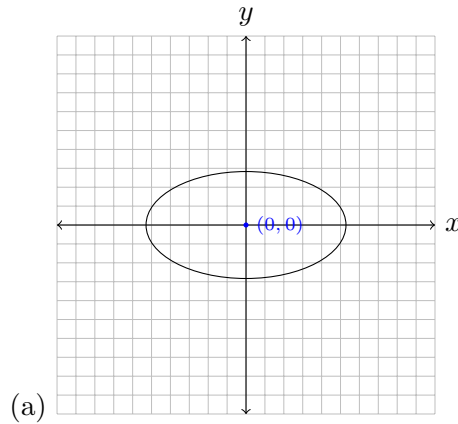
COLLEGE ALGEBRA QUIZ

(1) Which of the following is the graph of $y^2 = 16 - x^2$?

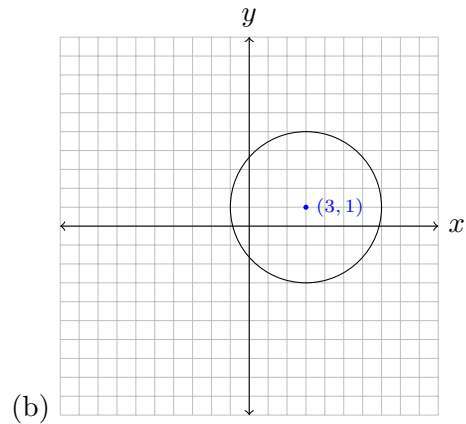
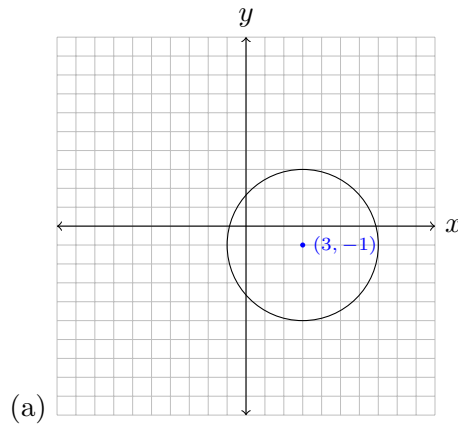
Solution: (a)

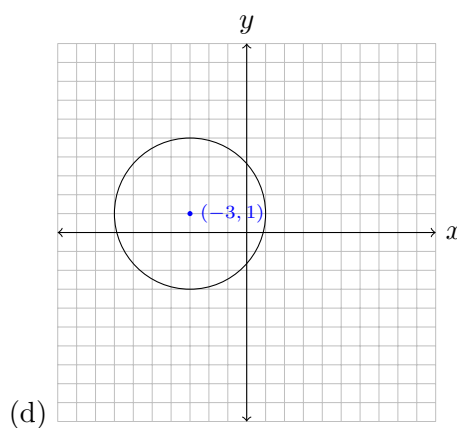
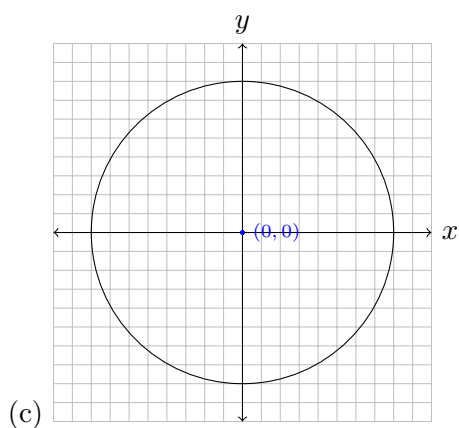


(2) Which of the following is the graph of $2x^2 + 7y^2 = 14$?

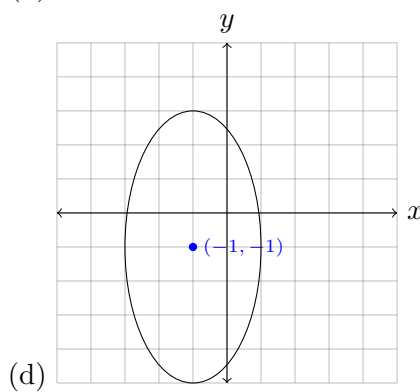
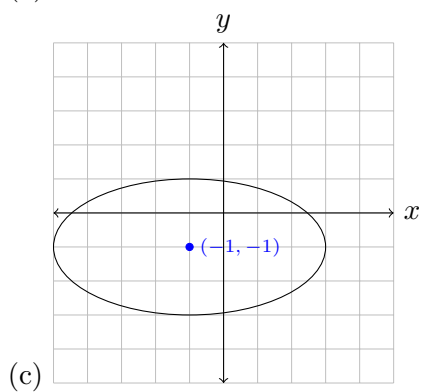
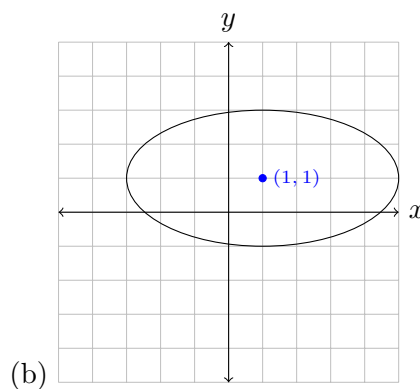
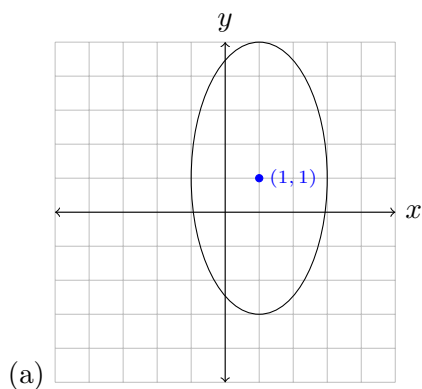


(3) Which of the following is the graph of $x^2 + y^2 - 6x + 2y = 6$?





(4) Which of the following is the graph of $4x^2 + y^2 - 8x - 2y = -1$?



(5) What is the center, vertices, and the foci of the ellipse,

$$9x^2 + 36y^2 - 72x + 72y - 144 = 0$$

Solution: (a)

(a) Center: $(4, -1)$;

Vertices: $(-2, -1), (10, -1)$;
 Foci: $(4 - 3\sqrt{3}, -1), (4 + 3\sqrt{3}, -1)$

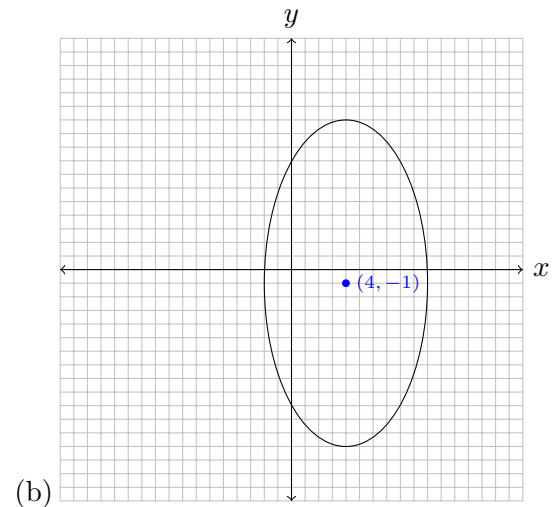
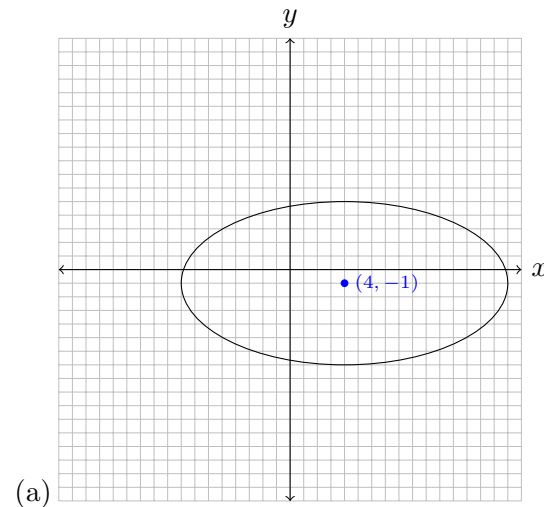
(b) Center: $(4, -1)$;
 Vertices: $(4, -7), (4, 5)$;
 Foci: $(4, -1 - 3\sqrt{3}), (4, -1 + 3\sqrt{3})$

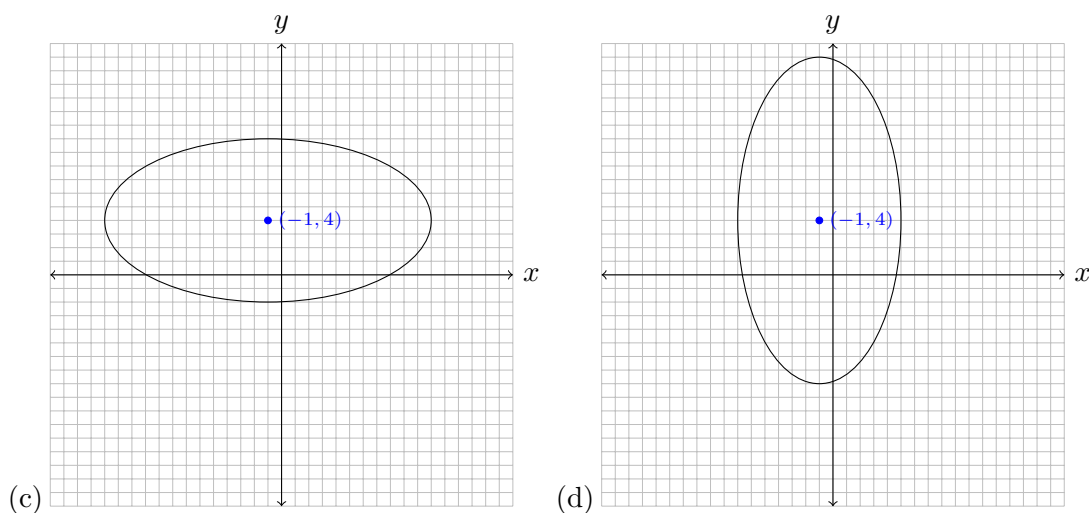
(c) Center: $(-1, 4)$;
 Vertices: $(-7, 4), (5, 4)$;
 Foci: $(-1 - 3\sqrt{3}, 4), (-1 + 3\sqrt{3}, 4)$

(d) Center: $(-1, 4)$;
 Vertices: $(-1, -2), (-1, 10)$;
 Foci: $(-1, 4 - 3\sqrt{3}), (-1, 4 + 3\sqrt{3})$

- (6) Which of the following is the graph of $9x^2 + 36y^2 - 72x + 72y - 144 = 0$
 (The ellipse in question 5)?

Solution: (a)





- (7) Which of the following is the equation of an ellipse with vertices at $(0, -7)$ and $(0, 7)$ if the length of the minor axis is 8?

Solution: (a)

- (a) $\frac{x^2}{16} + \frac{y^2}{49} = 1$
 (b) $\frac{x^2}{49} + \frac{y^2}{16} = 1$
 (c) $\frac{x^2}{16} + \frac{y^2}{64} = 1$
 (d) $\frac{x^2}{64} + \frac{y^2}{16} = 1$

- (8) Which of the following is true regarding a circle and an ellipse, if they are both represented by the following equation?

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

Solution: (a)

- (a) The center of the circle and the ellipse is at the origin. The radius of the circle is 1. $a = b = 1$ for the circle, but for the ellipse, $a > b > 0$.
 (b) The center of the circle and the ellipse is at the origin. The radius of the circle is 1. $a = b = 1$ for the circle and the ellipse.
 (c) The center of the circle and the ellipse is at the origin. The radius of the circle is 1. $a > b > 0$ for the circle and the ellipse.
 (d) The center of the circle and the ellipse is at the origin. The radius of the circle is 1. $a > b > 0$ for the circle, but for the ellipse, $a = b = 1$.