

12.1 Recitation Exercises

1. Which one of the following is the equation in standard form of the parabola with directrix $y = 7$ and focus $(1,3)$

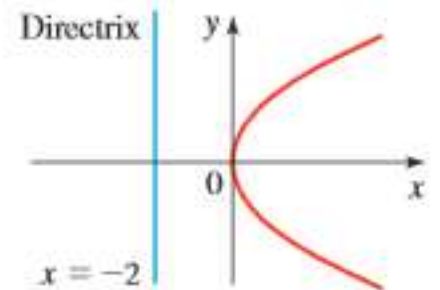
A) $y - 5 = -\frac{1}{8}(x - 1)^2$

B) $x - 5 = -\frac{1}{8}(x - 1)^2$

C) $y - 5 = \frac{1}{8}(x - 1)^2$

D) $x - 1 = \frac{1}{8}(y - 4)^2$

E) $y - 5 = \frac{1}{4}(x - 1)^2$



2. Find an equation of the parabola from the given graph

3. Find the vertex, focus, and directrix of the parabola given by the equation:

$$3x^2 - 12x - y + 14 = 0$$

4. Which of the following points lies on the parabola that has vertex $(2, 1)$ and focus $(2, 3)$

- A) $(4, 2)$ B) $(6, 3)$ C) $(5, 3)$ D) $(1, -3)$ E) $(-1, 3)$

12.2 & 12.3 Recitation Exercises

1. Find the center, the vertices, foci, and eccentricity of the ellipse given by the equation

a) $3x^2 + 2y^2 - 6x + 12y = -15$

b) $3y^2 + 2x^2 - 6y + 12x = -15$

2.

- a) Find the equation of the ellipse that has vertices at (3,8) and (3, -2), and foci at (3,6) and (3,0).

- b) Find the equation in standard form, of the ellipse with foci at (-1,2) and (3,2) that passes through the point (3,5).

3. Find the points of intersection of the ellipse $\frac{(x+1)^2}{16} + \frac{(y-2)^2}{9} = 1$, and the hyperbola $\frac{(x+1)^2}{16} - \frac{(y-2)^2}{9} = 1$:

- a) By solving the system of nonlinear equations.

- b) By graphing.

4. Find the equation in standard form of the hyperbola with vertices (-1,0) and (-1, -4), and eccentricity $e = \frac{\sqrt{5}}{2}$.

5. Write the following equations in standard form and identify the corresponding conics

a) $x^2 - 4x + y^2 + 2y + 2 = 0$.

b) $2x^2 - 8x - 2y^2 - 4y = 0$.

c) $27x^2 + 36y^2 + 18x + 36y - 96 = 0$.