

Homework

Express each equation in the form $y = a(x - h)^2 + k$. Name the coordinates of the vertex and focus, the equations of the axis of symmetry and directrix, and the direction of opening of the parabola with the given equation. Then find the length of the latus rectum and graph the parabola.

1. $y = 3x^2 - 24x + 50$

2. $y = \frac{1}{4}x^2 - \frac{1}{2}x - 3$

3. $y = \frac{-1}{3}x^2 - 12x + 15$

4. $y = -2x^2 + 5x - 10$

Write an equation for the parabola described below.

5. vertex, (6,8); focus, (6,2)

6. vertex, (1,7); directrix, $y = 3$

7. vertex, (-7,4); axis of symmetry, $x = -7$; measure of latus rectum, 6; $a < 0$