10-2 Standardized Test Prep
Parabolas

Multiple Choice

For Exercises 1–5, choose the correct letter.

1. Which is an equation of the parabola with the vertex at the origin and focus $(0, 3)$?

   Ⓐ $y = \frac{1}{4}x^2$ Ⓑ $y = \frac{1}{12}x^2$ Ⓒ $x = \frac{1}{12}y^2$ Ⓓ $x = \frac{1}{3}y^2$

2. What is the focus of the parabola with the equation $y = -\frac{1}{16}x^2$?

   Ⓕ $(0, -4)$ Ⓖ $(-4, 0)$ Ⓗ $\left(0, -\frac{1}{16}\right)$ Ⓘ $\left(-\frac{1}{4}, 0\right)$

3. Which is the equation of a parabola with vertex at the origin and directrix $x = 2.5$?

   Ⓐ $x = -\frac{1}{10}y^2$ Ⓑ $x = \frac{1}{10}y^2$ Ⓒ $x = \frac{1}{2.5}y^2$ Ⓓ $x = -\frac{5}{2}y^2$

4. What is the directrix of $x = 2.25y^2$?

   Ⓕ $x = \frac{1}{4}$ Ⓖ $x = -\frac{1}{4}$ Ⓗ $x = \frac{1}{9}$ Ⓘ $x = -\frac{1}{9}$

5. What is the vertex of $y = x^2 - 8x + 10$?

   Ⓐ $(-4, 8)$ Ⓑ $(8, 10)$ Ⓒ $(10, 16)$ Ⓓ $(4, -6)$

Short Response

6. What are the vertex, focus, and directrix of the parabola with equation
   $y = x^2 - 14x + 5$? Show your work.