10-6 Standardized Test Prep

Translating Conic Sections

Multiple Choice

For Exercises 1–4, choose the correct letter.

1. A horizontal ellipse has the equation $\dfrac{(x-2)^2}{25} + \dfrac{(y-3)^2}{16} = 1$. Which is a vertex?

   Ⓐ $(-7, 3)$ Ⓑ $(5, 4)$ Ⓒ $(7, 3)$ Ⓓ $(2, 3)$

2. A vertical ellipse has the equation $\dfrac{(x+8)^2}{81} + \dfrac{(y-7)^2}{36} = 1$. Which is a vertex?

   Ⓕ $(-8, 7)$ Ⓖ $(8, 7)$ Ⓗ $(7, 3)$ Ⓘ $(-8, 13)$

3. What is the equation of a horizontal hyperbola with vertices $(8, -3)$ and $(2, -3)$ and focus $(10, -3)$?

   Ⓐ $\dfrac{(x-5)^2}{9} - \dfrac{(y+3)^2}{16} = 1$ Ⓒ $\dfrac{(x-5)^2}{16} - \dfrac{(y+3)^2}{9} = 1$

   Ⓑ $\dfrac{(x-8)^2}{9} - \dfrac{(y+3)^2}{16} = 1$ Ⓓ $\dfrac{(x+10)^2}{4} - \dfrac{(y-3)^2}{9} = 1$

4. What are the foci of the hyperbola with the equation $\dfrac{(y-7)^2}{81} - \dfrac{(x-2)^2}{144} = 1$?

   Ⓕ $(7, 2); (9, 14)$ Ⓗ $(2, 22); (2, -8)$

   Ⓖ $(2, 16); (2, -2)$ Ⓘ $(7, 22); (7, -8)$

Extended Response

5. Identify the conic section represented by $25x^2 + 50x - 9y^2 - 18y - 209 = 0$. Give the center and foci. Sketch the graph. Show your work.