

10-5 Standardized Test Prep

Hyperbolas

Multiple Choice

For Exercises 1–4, choose the correct letter.

1. A hyperbola has vertices $(\pm 5, 0)$ and one focus at $(6, 0)$. What is the equation of the hyperbola in standard form?

(A) $\frac{x^2}{25} + \frac{y^2}{11} = 1$

(C) $\frac{x^2}{11} - \frac{y^2}{25} = 1$

(B) $\frac{x^2}{5} - \frac{y^2}{11} = 1$

(D) $\frac{x^2}{25} - \frac{y^2}{11} = 1$

2. A hyperbola with a horizontal transverse axis has asymptotes $y = \pm \frac{3}{4}x$. Which of the following could be the equation of the hyperbola in standard form?

(F) $\frac{x^2}{3} + \frac{y^2}{4} = 1$

(H) $\frac{x^2}{4} - \frac{y^2}{3} = 1$

(G) $\frac{x^2}{16} - \frac{y^2}{9} = 1$

(I) $\frac{x^2}{25} - \frac{y^2}{16} = 1$

3. What are the vertices of the hyperbola with the equation $8x^2 - 9y^2 = 72$?

(A) $(\pm 3, 0)$

(B) $(\pm 2\sqrt{2}, 0)$

(C) $(\pm 8, 0)$

(D) $(\pm 9, 0)$

4. What are the foci of the hyperbola with the equation $\frac{y^2}{12} - \frac{x^2}{5} = 1$?

(F) $(0, \pm 5)$

(G) $(0, \pm 12)$

(H) $(0, \pm \sqrt{13})$

(I) $(0, \pm \sqrt{17})$

Short Response

5. What are the vertices, foci, and asymptotes of the hyperbola with the equation $4y^2 - 16x^2 = 64$?