Name : _____ Score : _____

Teacher : _____ Date : _____

Writing Hyperbolas Equations

Use the given information to write the standard form equation of the hyperbolas.

1) Foci: $(-2 , -5 + 2\sqrt{34})$; $(-2 , -5 - 2\sqrt{34})$

Conjugate Axis Length: 12 units

2) Foci: $(-1 + \sqrt{58}, -2)$; $(-1 - \sqrt{58}, -2)$

Asym.: $y = \frac{3}{7}x - \frac{11}{7}$ and $y = \frac{-3}{7}x - \frac{17}{7}$

3) Vertices: (3 , 5) ; (3 , -3)

Conjugate Axis Length: 2 units

4) Vertices: (2 , 15) ; (2 , -7)

Distance from Center to Focus: $5\sqrt{5}$

5) Vertices: (-7 , 12) ; (-7 , -8)

Conjugate Axis Endpoints: (-16,2); (2,2)

6) $9x^2 - 4y^2 - 18x - 16y - 43 = 0$

7) Vertices: (11 , 8) ; (-7 , 8)

Asym.: $y = \frac{4}{9}x + \frac{64}{9}$ and $y = \frac{-4}{9}x + \frac{80}{9}$

8) Foci: $(4 + \sqrt{53}, -4)$; $(4 - \sqrt{53}, -4)$

Conjugate Axis Endpoints: (4,-6); (4,-2)

Name : _____ Score : _____

Teacher : _____ Date : _____

Writing Hyperbolas Equations

Use the given information to write the standard form equation of the hyperbolas.

1) Foci: $(-2 , -5 + 2\sqrt{34})$; $(-2 , -5 - 2\sqrt{34})$

Conjugate Axis Length: 12 units

$$\frac{(y + 5)^2}{100} - \frac{(x + 2)^2}{36} = 1$$

2) Foci: $(-1 + \sqrt{58} , -2)$; $(-1 - \sqrt{58} , -2)$

Asym.: $y = \frac{3}{7}x - \frac{11}{7}$ and $y = \frac{-3}{7}x - \frac{17}{7}$

$$\frac{(x + 1)^2}{49} - \frac{(y + 2)^2}{9} = 1$$

3) Vertices: (3 , 5) ; (3 , -3)

Conjugate Axis Length: 2 units

$$\frac{(y - 1)^2}{16} - \frac{(x - 3)^2}{1} = 1$$

4) Vertices: (2 , 15) ; (2 , -7)

Distance from Center to Focus: $5\sqrt{5}$

$$\frac{(y - 4)^2}{121} - \frac{(x - 2)^2}{4} = 1$$

5) Vertices: (-7 , 12) ; (-7 , -8)

Conjugate Axis Endpoints: (-16,2); (2,2)

$$\frac{(y - 2)^2}{100} - \frac{(x + 7)^2}{81} = 1$$

6) $9x^2 - 4y^2 - 18x - 16y - 43 = 0$

$$\frac{(x - 1)^2}{4} - \frac{(y + 2)^2}{9} = 1$$

7) Vertices: (11 , 8) ; (-7 , 8)

Asym.: $y = \frac{4}{9}x + \frac{64}{9}$ and $y = \frac{-4}{9}x + \frac{80}{9}$

$$\frac{(x - 2)^2}{81} - \frac{(y - 8)^2}{16} = 1$$

8) Foci: $(4 + \sqrt{53} , -4)$; $(4 - \sqrt{53} , -4)$

Conjugate Axis Endpoints: (4,-6); (4,-2)

$$\frac{(x - 4)^2}{49} - \frac{(y + 4)^2}{4} = 1$$