

Name : _____

Score : _____

Teacher : _____

Date : _____

Writing Hyperbolas Equations

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

1) Foci: $(2 + \sqrt{82}, -2)$; $(2 - \sqrt{82}, -2)$

Conjugate Axis Length: 2 units

5) Vertices: $(6, -1)$; $(6, -13)$

Conjugate Axis Length: 10 units

2) Vertices: $(12, -1)$; $(0, -1)$

Foci: $(6 + 2\sqrt{10}, -1)$; $(6 - 2\sqrt{10}, -1)$

6) Vertices: $(6, -6)$; $(6, -10)$

Conjugate Axis Endpoints: $(5, -8)$; $(7, -8)$

3) Foci: $(-3, 6)$; $(-3, -20)$

Conjugate Axis Endpoints: $(-8, -7)$; $(2, -7)$

7) Vertices: $(8, -3)$; $(-2, -3)$

Distance from Center to Focus: $\sqrt{26}$

4) Foci: $(2 + 2\sqrt{17}, 7)$; $(2 - 2\sqrt{17}, 7)$

Asym.: $y = \frac{1}{4}x + \frac{26}{4}$ and $y = \frac{-1}{4}x + \frac{30}{4}$

8) Vertices: $(8, 3)$; $(-14, 3)$

Asym.: $y = \frac{9}{11}x + \frac{60}{11}$ and $y = \frac{-9}{11}x + \frac{6}{11}$



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Writing Hyperbolas Equations

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

1) Foci: $(2 + \sqrt{82}, -2)$; $(2 - \sqrt{82}, -2)$

Conjugate Axis Length: 2 units

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

5) Vertices: $(6, -1)$; $(6, -13)$

Conjugate Axis Length: 10 units

$$\frac{(y + 7)^2}{36} - \frac{(x - 6)^2}{25} = 1$$

2) Vertices: $(12, -1)$; $(0, -1)$

Foci: $(6 + 2\sqrt{10}, -1)$; $(6 - 2\sqrt{10}, -1)$

$$\frac{(x - 6)^2}{36} - \frac{(y + 1)^2}{4} = 1$$

6) Vertices: $(6, -6)$; $(6, -10)$

Conjugate Axis Endpoints: $(5, -8)$; $(7, -8)$

$$\frac{(y + 8)^2}{4} - \frac{(x - 6)^2}{1} = 1$$

3) Foci: $(-3, 6)$; $(-3, -20)$

Conjugate Axis Endpoints: $(-8, -7)$; $(2, -7)$

$$\frac{(y + 7)^2}{144} - \frac{(x + 3)^2}{25} = 1$$

7) Vertices: $(8, -3)$; $(-2, -3)$

Distance from Center to Focus: $\sqrt{26}$

$$\frac{(x - 3)^2}{25} - \frac{(y + 3)^2}{1} = 1$$

4) Foci: $(2 + 2\sqrt{17}, 7)$; $(2 - 2\sqrt{17}, 7)$

Asym.: $y = \frac{1}{4}x + \frac{26}{4}$ and $y = \frac{-1}{4}x + \frac{30}{4}$

$$\frac{(x - 2)^2}{64} - \frac{(y - 7)^2}{4} = 1$$

8) Vertices: $(8, 3)$; $(-14, 3)$

Asym.: $y = \frac{9}{11}x + \frac{60}{11}$ and $y = \frac{-9}{11}x + \frac{6}{11}$

$$\frac{(x + 3)^2}{121} - \frac{(y - 3)^2}{81} = 1$$

