

Math Sheet

Name _____ Score _____ / 24 Teacher _____ Date _____

Properties of Hyperbolas

Identify the requested exact properties of each hyperbola.

1. $\frac{(x-5)^2}{100} - 1 \cdot \frac{(y-8)^2}{100} = 1$

Vertices: _____

Foci: _____

Opens: _____

2. $\frac{(y+5)^2}{144} - 1 \cdot \frac{(x+1)^2}{1} = 1$

Vertices: _____

Foci: _____

Opens: _____

3. $\frac{(x+1)^2}{36} - 1 \cdot \frac{(y-5)^2}{9} = 1$

Vertices: _____

Foci: _____

Opens: _____

4. $\frac{(y+3)^2}{25} - 1 \cdot \frac{(x+8)^2}{49} = 1$

Vertices: _____

Foci: _____

Opens: _____

5. $\frac{(x-2)^2}{144} - 1 \cdot \frac{(y+4)^2}{81} = 1$

Vertices: _____

Foci: _____

Opens: _____

6. $\frac{(y-3)^2}{49} - 1 \cdot \frac{(x-7)^2}{4} = 1$

Vertices: _____

Foci: _____

Opens: _____

7. $\frac{(x-2)^2}{9} - 1 \cdot \frac{(y-7)^2}{49} = 1$

Vertices: _____

Foci: _____

Opens: _____

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Properties of Hyperbolas

Identify the requested exact properties of each hyperbola.

8. $\frac{(y+8)^2}{16} - \frac{(x+5)^2}{64} = 1$

Vertices: _____

Foci: _____

Opens: _____

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Properties of Hyperbolas

Answer Key

Identify the requested exact properties of each hyperbola.

1. $\frac{(x-5)^2}{100} - 1 \cdot \frac{(y-8)^2}{100} = 1$

Vertices: (15,8),(-5 ,8)

Foci: (5+10·√2,8),(5- 10·√2,8)

Opens: left/right

2. $\frac{(y+5)^2}{144} - 1 \cdot \frac{(x+1)^2}{1} = 1$

Vertices: (-1 ,7),(-1 ,-17)

Foci: (-1 ,- 5+√145),(-1 ,- 5- 1·√145)

Opens: up/down

3. $\frac{(x+1)^2}{36} - 1 \cdot \frac{(y-5)^2}{9} = 1$

Vertices: (5,5),(-7 ,5)

Foci: (- 1+3·√5,5),(- 1- 3·√5,5)

Opens: left/right

4. $\frac{(y+3)^2}{25} - 1 \cdot \frac{(x+8)^2}{49} = 1$

Vertices: (-8 ,2),(-8 ,-8)

Foci: (-8 ,- 3+√74),(-8 ,- 3- 1·√74)

Opens: up/down

5. $\frac{(x-2)^2}{144} - 1 \cdot \frac{(y+4)^2}{81} = 1$

Vertices: (14,-4),(-10 ,-4)

Foci: (17,-4),(-13 ,-4)

Opens: left/right

6. $\frac{(y-3)^2}{49} - 1 \cdot \frac{(x-7)^2}{4} = 1$

Vertices: (7,10),(7,-4)

Foci: (7,3+√53),(7,3- 1·√53)

Opens: up/down

7. $\frac{(x-2)^2}{9} - 1 \cdot \frac{(y-7)^2}{49} = 1$

Vertices: (5,7),(-1 ,7)

Foci: (2+√58,7),(2- 1·√58,7)

Opens: left/right

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Properties of Hyperbolas

Answer Key

Identify the requested exact properties of each hyperbola.

8.
$$\frac{(y+8)^2}{16} - \frac{(x+5)^2}{64} = 1$$

Vertices: (-5, -4), (-5, -12)

Foci: (-5, -8 + 4√5), (-5, -8 - 4√5)

Opens: up/down