Name : _____ Score : _____

Teacher : _____ Date : _____

Properties of Hyperbolas

Identify the following properties.

1) $\frac{x^2}{144} - \frac{(y - 7)^2}{9} = 1$

Vertices:

Foci:

Opens:

2) $\frac{(y + 2)^2}{64} - \frac{(x + 3)^2}{16} = 1$

Vertices:

Foci:

Opens:

3) $\frac{(x - 6)^2}{64} - \frac{(y + 8)^2}{49} = 1$

Vertices:

Foci:

Opens:

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

Vertices:

Foci:

Opens:

5) $\frac{(x + 6)^2}{16} - \frac{(y - 1)^2}{9} = 1$

Vertices:

Foci:

Opens:

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

Vertices:

Foci:

Opens:

7) $\frac{x^2}{64} - \frac{(y - 3)^2}{25} = 1$

Vertices:

Foci:

Opens:

8) $\frac{(y + 6)^2}{64} - \frac{(x - 6)^2}{36} = 1$

Vertices:

Foci:

Opens:

Name : _____ Score : _____

Teacher : _____ Date : _____

Properties of Hyperbolas

Identify the following properties.

1) $\frac{x^2}{144} - \frac{(y - 7)^2}{9} = 1$

Vertices = (12 , 7) , (-12 , 7)

Opens left/right

Foci = ($3\sqrt{17}$, 7) , ($-3\sqrt{17}$, 7)

2) $\frac{(y + 2)^2}{64} - \frac{(x + 3)^2}{16} = 1$

Vertices = (-3 , 6) , (-3 , -10)

Opens up/down

Foci = (-3 , $-2 + 4\sqrt{5}$) , (-3 , $-2 - 4\sqrt{5}$)

3) $\frac{(x - 6)^2}{64} - \frac{(y + 8)^2}{49} = 1$

Vertices = (14 , -8) , (-2 , -8)

Opens left/right

Foci = ($6 + \sqrt{113}$, -8) , ($6 - \sqrt{113}$, -8)

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

Vertices = (5 , 4) , (-13 , 4)

Opens left/right

Foci = ($-4 + \sqrt{85}$, 4) , ($-4 - \sqrt{85}$, 4)

5) $\frac{(x + 6)^2}{16} - \frac{(y - 1)^2}{9} = 1$

Vertices = (-2 , 1) , (-10 , 1)

Opens left/right

Foci = (-1 , 1) , (-11 , 1)

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

Vertices = (4 , -1) , (-8 , -1)

Opens left/right

Foci = ($-2 + \sqrt{61}$, -1) , ($-2 - \sqrt{61}$, -1)

7) $\frac{x^2}{64} - \frac{(y - 3)^2}{25} = 1$

Vertices = (8 , 3) , (-8 , 3)

Opens left/right

Foci = ($\sqrt{89}$, 3) , ($-\sqrt{89}$, 3)

8) $\frac{(y + 6)^2}{64} - \frac{(x - 6)^2}{36} = 1$

Vertices = (6 , 2) , (6 , -14)

Opens up/down

Foci = (6 , 4) , (6 , -16)