

Name : _____

Score : _____

Teacher : _____

Date : _____

Properties of Hyperbolas

Identify the following properties.

$$1) \frac{y^2}{121} - \frac{(x + 2)^2}{64} = 1$$

Vertices:

Foci:

Opens:

$$5) \frac{(x + 8)^2}{9} - \frac{(y - 5)^2}{1} = 1$$

Vertices:

Foci:

Opens:

$$2) \frac{(y - 7)^2}{36} - \frac{(x + 8)^2}{16} = 1$$

Vertices:

Foci:

Opens:

$$6) \frac{(x - 4)^2}{144} - \frac{(y - 8)^2}{1} = 1$$

Vertices:

Foci:

Opens:

$$3) \frac{(y - 1)^2}{25} - \frac{(x + 2)^2}{16} = 1$$

Vertices:

Foci:

Opens:

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

Vertices:

Foci:

Opens:

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

Vertices:

Foci:

Opens:

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

Vertices:

Foci:

Opens:



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Properties of Hyperbolas

Identify the following properties.

$$1) \frac{y^2}{121} - \frac{(x + 2)^2}{64} = 1$$

Vertices = (-2, 11), (-2, -11)

Opens up/down

Foci = (-2, $\sqrt{185}$), (-2, $-\sqrt{185}$)

$$2) \frac{(y - 7)^2}{36} - \frac{(x + 8)^2}{16} = 1$$

Vertices = (-8, 13), (-8, 1)

Opens up/down

Foci = (-8, $7 + 2\sqrt{13}$), (-8, $7 - 2\sqrt{13}$)

$$3) \frac{(y - 1)^2}{25} - \frac{(x + 2)^2}{16} = 1$$

Vertices = (-2, 6), (-2, -4)

Opens up/down

Foci = (-2, $1 + \sqrt{41}$), (-2, $1 - \sqrt{41}$)

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

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

Opens up/down

Foci = (8, $\sqrt{5}$), (8, $-\sqrt{5}$)

$$5) \frac{(x + 8)^2}{9} - \frac{(y - 5)^2}{1} = 1$$

Vertices = (-5, 5), (-11, 5)

Opens left/right

Foci = (-8 + $\sqrt{10}$, 5), (-8 - $\sqrt{10}$, 5)

$$6) \frac{(x - 4)^2}{144} - \frac{(y - 8)^2}{1} = 1$$

Vertices = (16, 8), (-8, 8)

Opens left/right

Foci = (4 + $\sqrt{145}$, 8), (4 - $\sqrt{145}$, 8)

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

Vertices = (12, -1), (-4, -1)

Opens left/right

Foci = (4 + $\sqrt{65}$, -1), (4 - $\sqrt{65}$, -1)

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

Vertices = (8, 10), (8, -6)

Opens up/down

Foci = (8, 12), (8, -8)

