

Lesson 88 Objective: SWBAT graph hyperbolas and find key features

Kickoff

Complete questions 15 and 16 on homework packet!

$$\frac{(x+2)^2}{4b} + \frac{(y-7)^2}{25} = 1 \quad \text{Horizontal Center } (2, 7)$$

4) $(-2 \pm \sqrt{8})^2$ **5)** $\frac{(x+8)^2}{(64-8)} - \frac{(y-7)^2}{81} = 1$

4) $(2, b, 7) \quad (-6, b, 7)$ **5)** $a^2 = b^2 + c^2$ $c = \sqrt{21}$

$a^2 = 1^2 + 2^2$ $b = 5$

$\rightarrow \frac{(x+2)^2}{4b} + \frac{(y-7)^2}{25} = 1 \quad a^2 = 4b$

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15) $16x^2 + 49y^2 - 64x + 392y + 64 = 0$

16) $4x^2 + y^2 - 64x + 20y + 320 = 0$

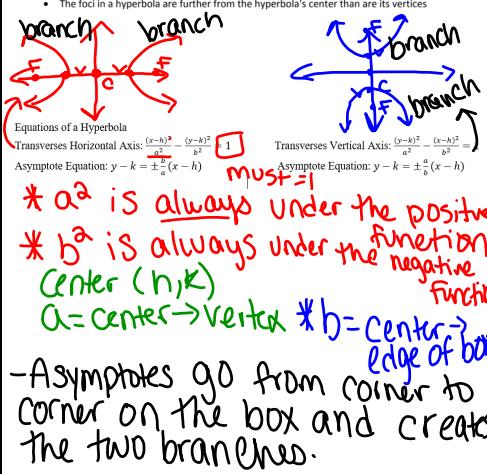
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Hyperbolas

A **hyperbola** looks sort of like two mirrored parabolas, with the two "halves" being called "branches". Like an **ellipse**, a hyperbola has two foci and two vertices.

Unlike an ellipse,

- The foci in a hyperbola are further from the hyperbola's center than are its vertices

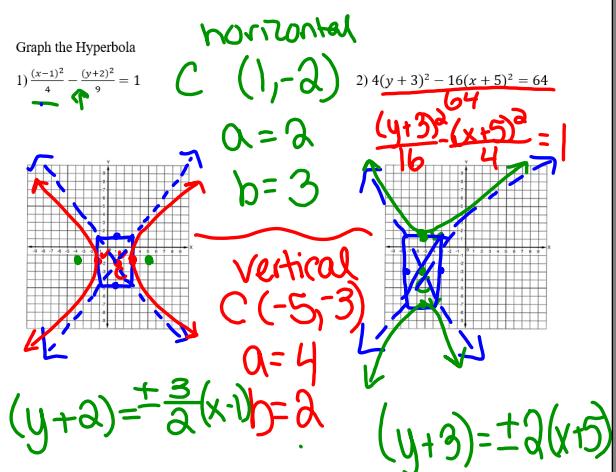


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Graph the Hyperbola

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

2) $4(y+3)^2 - 16(x+5)^2 = 64$



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