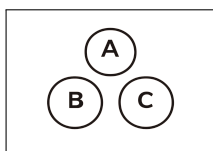


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Functions and Graphs Hyperbola

A



$$a = 4$$

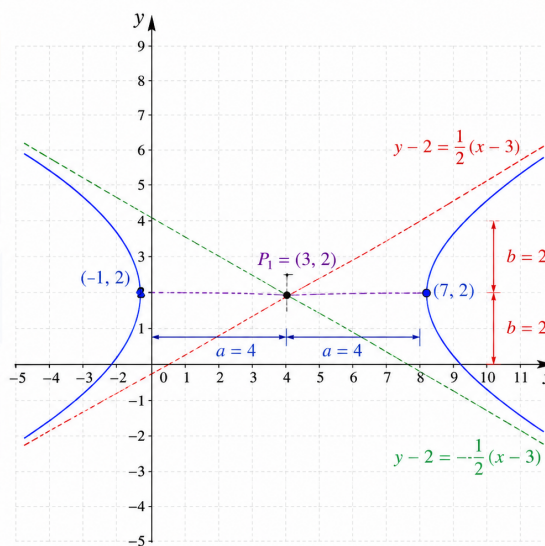
$$b = 2$$

$$P_1 = (3, 2)$$

$$\frac{(x-3)^2}{4^2} - \frac{(y-2)^2}{2^2} = 1$$

$$m = \pm \frac{b}{a} = \pm \frac{2}{4} = \pm \frac{1}{2}$$

$$y - 2 = \pm \frac{1}{2}(x - 3)$$



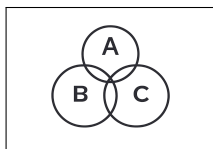
$$a = 4, b = 2$$

$$P_1 = (3, 2)$$

$$\frac{(x-3)^2}{4^2} - \frac{(y-2)^2}{2^2} = 1$$

$$m = \pm \frac{b}{a} = \pm \frac{2}{4} = \pm \frac{1}{2}$$

$$y - 2 = \pm \frac{1}{2}(x - 3)$$



$$\frac{(x-h)^2}{a^2} - \frac{(y-h)^2}{b^2} = 1$$

$$m = \pm b/a$$



$$a = 3, b = 5$$

$$P_1 = (2, 1)$$

$$1 = ?$$

$$m = ?$$

21

Functions and Graphs Hyperbola

A



$$a = 3, b = 5$$

$$P_1 = (2, 1)$$

$$\frac{(x-2)^2}{3^2} - \frac{(y-1)^2}{5^2} = 1$$

$$m = \pm \frac{5}{3}$$

$$y - 1 = \pm \frac{5}{3}(x - 2)$$

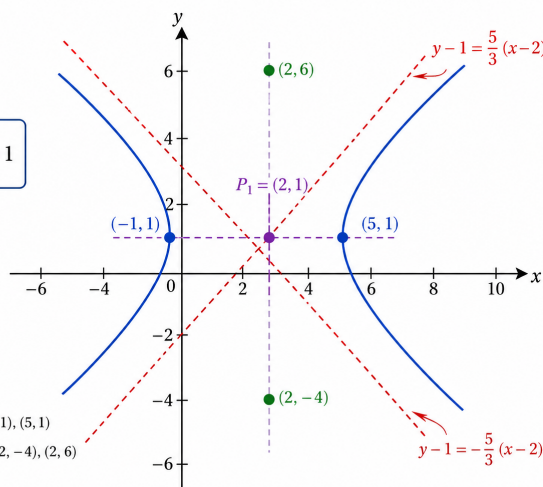
— Hyperbola

- - - Asymptotes

• Center $P_1 = (2, 1)$

• Vertices $(2 \pm 3, 1) = (-1, 1), (5, 1)$

• Co-vertices $(2, 1 \pm 5) = (2, -4), (2, 6)$



$$a = 3, b = 5$$

$$P_1 = (2, 1)$$

$$(x - 2)^2/3^2 - (y - 1)^2/5^2 = 1$$

$$m = \pm 5/3$$

$$y - 1 = \pm 5/3(x - 2)$$