

For questions 1 - 6, find the vertices, foci, and slopes of asymptotes and sketch a graph for each.

$$1) \frac{4y^2}{36} - \frac{9x^2}{36} = \frac{36}{36}$$

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

$$m = \pm \frac{3}{2}$$

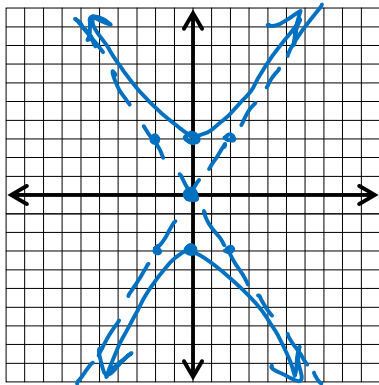
vert. center (0,0)

$$a=3$$

$$b=2$$

$$c=\sqrt{13}$$

foci (0, ±√13)



$$2) \frac{x^2}{16} - \frac{y^2}{16} = 16$$

$$\frac{x^2}{16} - \frac{y^2}{16} = 1$$

$$m = \pm 1$$

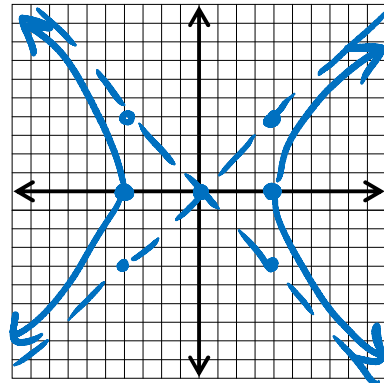
hor. center (0,0)

$$a=4$$

$$b=4$$

$$c=4\sqrt{2}$$

foci (±4√2, 0)



$$3) \frac{4(x-1)^2}{4} - \frac{(y-2)^2}{4} + 1 = 5$$

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

$$m = \pm 2$$

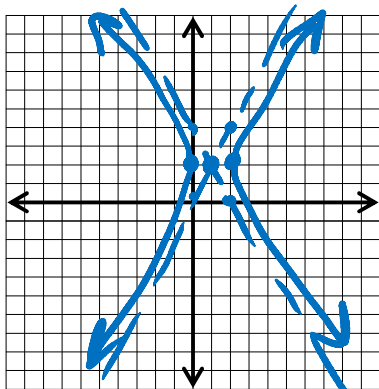
hor. center (1,2)

$$a=1$$

$$b=2$$

$$c=\sqrt{5}$$

foci (1±√5, 2)



$$4) \frac{(y+3)^2}{16} - \frac{16(x-2)^2}{16} = 16$$

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

$$m = \pm 4$$

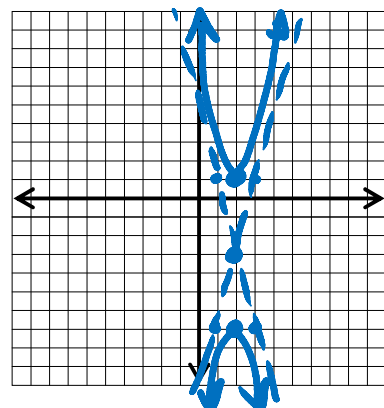
vert center (2,-3)

$$a=4$$

$$b=1$$

$$c=\sqrt{17}$$

foci (2, -3±√17)



$$5. \frac{(y-4)^2}{4} - \frac{x^2}{36} = 1$$

vert. center
(0, 4)

$$a = 2$$

$$b = 6$$

$$c = \sqrt{40} = 2\sqrt{10}$$

$$\text{foci } (0, 4 \pm 2\sqrt{10})$$

$$m = \pm \frac{1}{3}$$

$$6) \frac{(x-1)^2}{25} - \frac{y^2}{12} = 1$$

hor. center
(1, 0)

$$a = 5$$

$$b = \sqrt{12} = 2\sqrt{3}$$

$$c = \sqrt{37}$$

$$\text{foci } (1 \pm \sqrt{37}, 0)$$

$$m = \pm \frac{2\sqrt{3}}{5}$$

