

3/15

Review

①

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

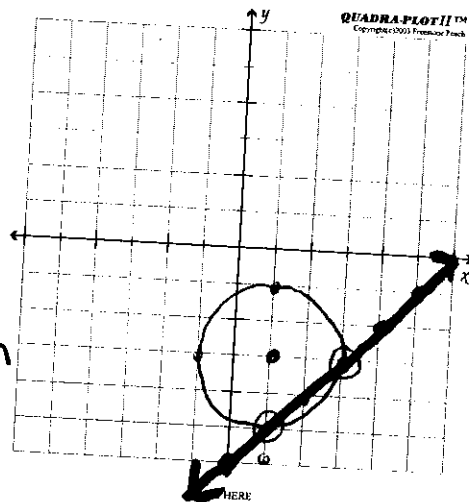
$$(x-1)^2 + (y+3)^2 = 4$$

$$(1, -3) \quad R = 2$$

$$y = x - 6$$

Points of Intersection

$$\checkmark (1, -5) \quad (3, -3) \checkmark$$



②

$$\frac{(y-6)^2}{4} + \frac{(x-2)^2}{9} = 1 \quad \text{ellipse}$$

major(x)

$$c^2 = a^2 - b^2$$

$$c^2 = 9 - 4$$

$$c^2 = 5$$

$$c = \pm\sqrt{5}$$

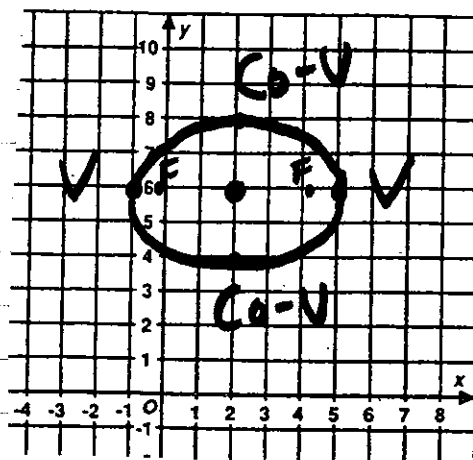
center (2, 6)

$$a = 3 \quad b = 2$$

$$V: (5, 6) \quad (-1, 6)$$

$$Co-V: (2, 8) \quad (2, 4)$$

$$F: (2 \pm \sqrt{5}, 6)$$



$$\textcircled{3} \quad \frac{(x-3)^2}{1} - \frac{(y+1)^2}{9} = 1$$

major(x)

$$\boxed{a=1} \quad \boxed{b=3}$$

center: (3, -1)

$$c^2 = \dots$$

$$y = \pm \frac{b}{a}x$$

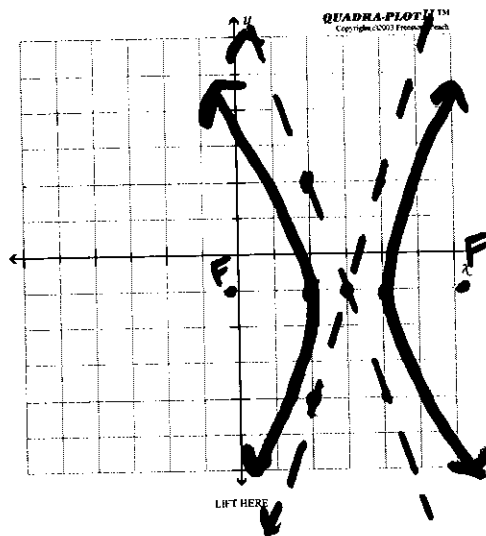
$$c^2 = \dots$$

$$y = \pm \frac{3}{1}x$$

$$c^2 = \dots$$

v: (2, -1)
(4, -1)

F: (3 ± √10, -1)



$$\textcircled{4} \quad x^2 - 4y^2 - 2x - 8y = 7$$

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

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

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

⑤ Write the eq. of an ellipse

vertices: $(9, 2)$ $(-3, 2)$

co-vertices: $(3, 5)$ $(3, -1)$

$$\frac{(x-3)^2}{36} + \frac{(y-2)^2}{9} = 1 \quad \text{center } (3, 2)$$

$$a = 6$$

$$b = 3$$

⑥ Write the eq. of a hyperbola

vertices: $(0, -2)$ $(0, 4)$

Foci: $(0, 6)$ $(0, -4)$

center $(0, 1)$

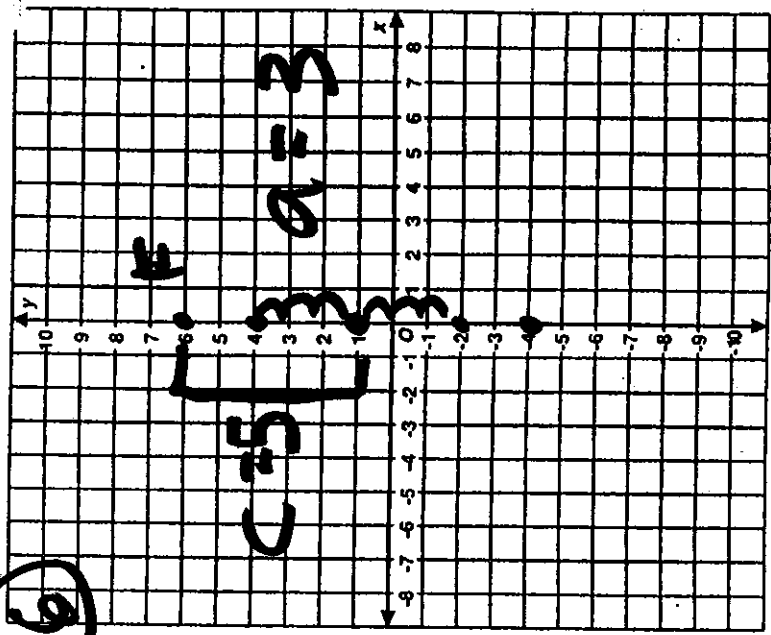
$$\frac{(y-1)^2}{9} - \frac{(x-0)^2}{16} = 1$$

$$5^2 = 3^2 + b^2$$

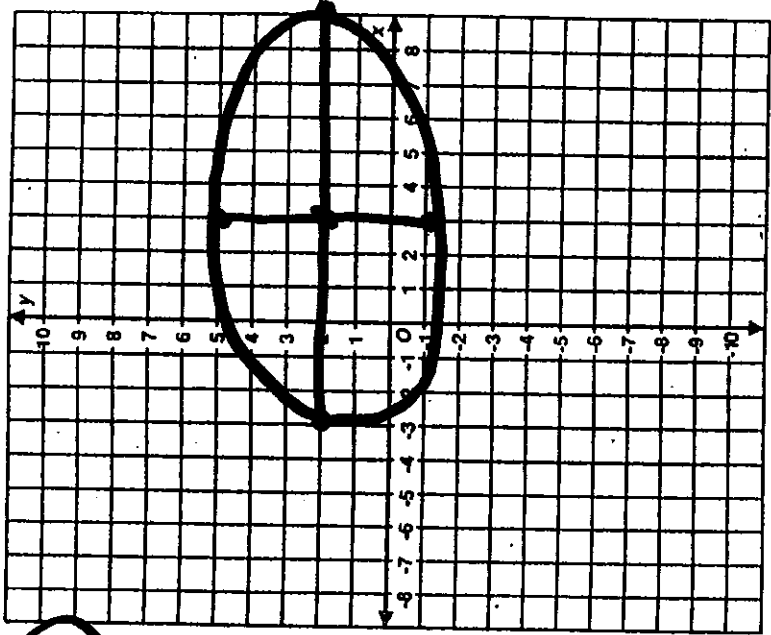
$$25 = 9 + b^2$$

$$16 = b^2$$

6



5



ALGEBRA 2

Name _____

Date _____

In 1-6, match the equation with its graph.

1) $\frac{(x-5)^2}{25} + \frac{(y-4)^2}{16} = 1$ _____

2) $\frac{(y+4)^2}{16} - \frac{(x-5)^2}{25} = 1$ _____

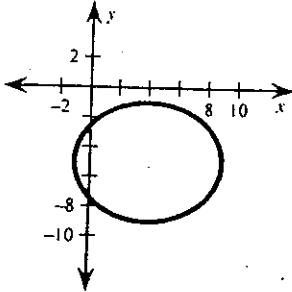
3) $\frac{(y+5)^2}{16} + \frac{(x-4)^2}{25} = 1$ _____

4) $\frac{(x+5)^2}{16} - \frac{(y+4)^2}{25} = 1$ _____

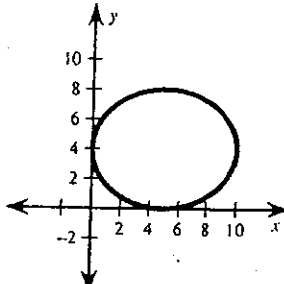
5) $\frac{(y+4)^2}{25} + \frac{(x-5)^2}{16} = 1$ _____

6) $\frac{(x-4)^2}{16} - \frac{(y-5)^2}{25} = 1$ _____

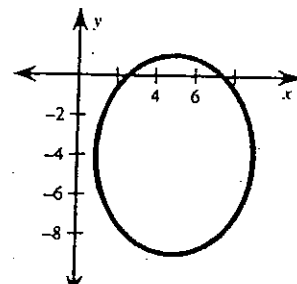
a.



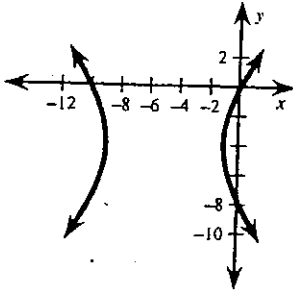
b.



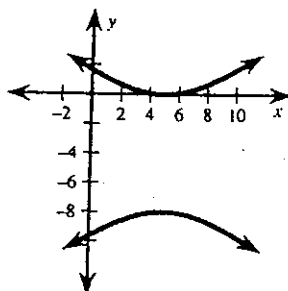
c.



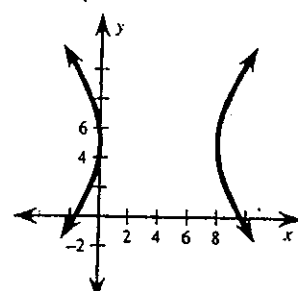
d.



e.



f.



In 7-8, find an equation of the conic.

7) *Ellipse* Vertices: $(-1, 7), (-1, 1)$
Co-vertices: $(-3, 4), (1, 4)$

8) *Hyperbola* Foci: $(0, -6), (0, 6)$
Vertices: $(0, -1), (0, 1)$

9.) find the points of intersection, if any.

$$x^2 + y^2 = 25$$

$$y = x + 1$$

(Graph or solve by substitution.)

10.) Write the equation for the *hyperbola* in standard form.

$$-9x^2 + 16y^2 + 54x + 64y - 161 = 0$$