

$$\text{Ell. } \frac{(x-7)^2}{9} + \frac{(y+3)^2}{25} = 1$$

$$\text{C } \underline{5x^2} + 3x - 2 = 6y - \underline{5y^2}$$
$$5x^2 + 5y^2$$

$$\text{P } 2y - 4x + 7 = 9x - y^2$$

$$\text{H } 7x^2 - 9y^2$$

$$\begin{array}{l} 3/p \quad 2x^2 + y = 0 \\ C_2 [ \quad x^2 + y^2 = 5 \end{array}$$



$$\begin{array}{r} 2x^2 + y = 0 \\ + -2x^2 - 2y^2 = -10 \\ \hline \end{array}$$

$$y - 2y^2 = -10$$

$$0 = 2y^2 - y - 10$$

$$0 = (2y - 5)(y + 2)$$

$\begin{array}{c} -5y \\ +4y \end{array}$

$$2y - 5 = 0$$

$$y + 2 = 0$$

$$\frac{2y}{2} = \frac{5}{2}$$

$$y = -2$$

$$x^2 + y^2 = 5$$

$$\cancel{y = 5/2} \quad x^2 + \left(\frac{5}{2}\right)^2 = 5$$

$$x^2 + \frac{25}{4} = 5 = \frac{20}{4}$$

$- \frac{25}{4}$

$$\sqrt{x^2} = \sqrt{\frac{5}{4}}$$

$$y = -2 \quad x^2 + (-2)^2 = 5$$

$$x^2 + 4 = 5$$

$$\sqrt{x^2} = \sqrt{1}$$

$$x = \pm 1$$

$$(1, -2)$$

$$(-1, -2)$$

Circles

$$(x+7)^2 + (y-5)^2 = 24$$

$$\text{Center } (-7, 5) \quad \sqrt{r^2} = \sqrt{24}$$

$$r = 2\sqrt{6}$$

$$x^2 + y^2 - 16x + 8y - 1 = 0$$

$$x^2 - 16x + 64 + y^2 + 8y + 16 = 1 + 64 + 16$$

$$(x-8)^2 + (y+4)^2 = 81$$

$$\text{Center } (8, -4) \quad \sqrt{r^2} = \sqrt{81} = 9$$

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

vertex:  $(4, -2)$

line of Sym.  $y = -2$

Direction: Left

Focus  $(h + \frac{1}{4a}, k)$   
 $(4 + \frac{1}{4(\frac{-1}{16})}, -2)$

$$(4 + \frac{1}{-\frac{1}{4}}, -2)$$

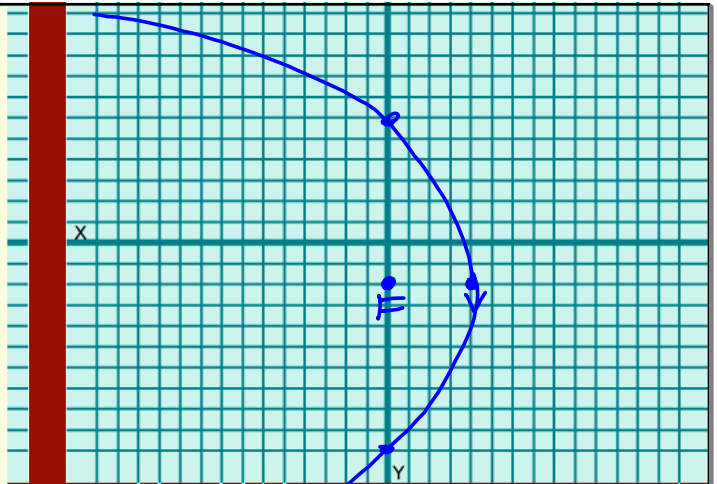
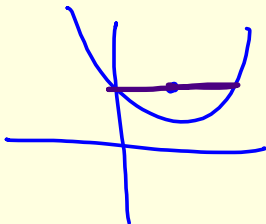
$$(4 + 1 \cdot -4, -2)$$

$$(4 - 4, -2)$$

Focus  $(0, -2)$

Latus  $|\frac{1}{a}| = |\frac{1}{\frac{-1}{16}}|$

$$= 16$$



$$4x^2 - 25y^2 - 16x + 50y + 131 = 0$$

$$4x^2 - 16x \quad -25y^2 + 50y \quad = -131$$

$$4(x^2 - 4x + 4) - 25(y^2 - 2y + 1) = 109$$

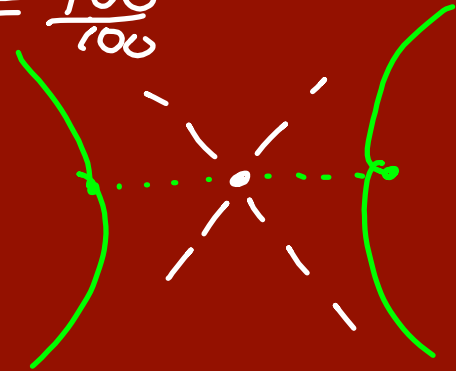
$+16$   
 $-25$

$$\frac{4(x-2)^2}{100} - \frac{25(y-1)^2}{100} = \frac{109}{100}$$

x first  
Honz.

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

a is first  
a=5



$$\text{Ell} \quad \frac{(x-3)^2}{9} + \frac{(y+4)^2}{25} = 1$$

$$a^2 = 25 \quad a = 5$$

$$b^2 = 9 \quad b = 3$$

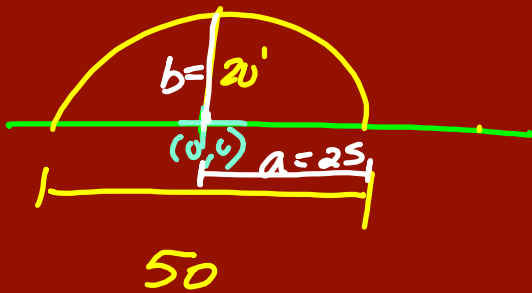
Vertical (Big # under  $y$ )

$$\text{Hyp} \quad \frac{(x-3)^2}{9} - \frac{(y+4)^2}{25} = 1$$

$$a^2 = 9 \quad a = 3$$

$$b^2 = 25 \quad b = 5$$

$x$ 's first horiz



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

$$\frac{x^2}{25^2} + \frac{y^2}{20^2} = 1$$