Graph the parabola:

$$(x-4)^2 = -8(y+1)$$

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$$(x-4)^2 = -8(y+1)$$

vertex: $(4,-1)$
$4p = -8$
$p = -2$
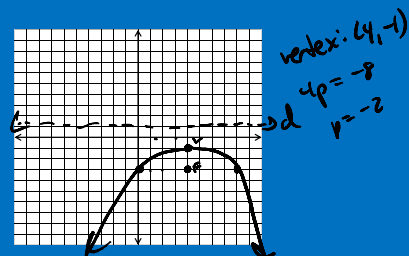
Write the equation of the conic in Standard form:

$$3x^2 + 5y^2 + 12x - 10y + 2 = 0$$

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$$3x^2 + 5y^2 + 12x - 10y + 2 = 0$$

$3x^2 + 12x + 5y^2 - 10y = -2$

$3(x^2 + 4x + \underline{4}) + 5(y^2 - 2y + \underline{1}) = -2 + 12 + 5$

$3(x+2)^2 + 5(y-1)^2 = 15$

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

Write the equation of the conic in parametric form:

$$\frac{(x-4)^2}{16} - \frac{(y+1)^2}{36} = 1$$

Write the equation of the conic in parametric form:

$$\frac{(x-4)^2}{16} - \frac{(y+1)^2}{36} = 1$$

$x = 4 + 4\sec t$

$y = -1 + 6\tan t$

Find the coordinates of the
Focal points of the shape:

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

Find the coordinates of the
Focal points of the shape:

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

$c^2 = 16 + 4$
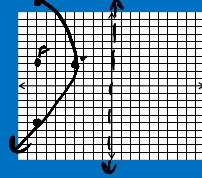$c^2 = 20$ $c = \sqrt{20} = 2\sqrt{5}$

$\boxed{(4 + 2\sqrt{5}, -1) , (4 - 2\sqrt{5}, -1)}$

Graph the parabola:

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

Graph the parabola:

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

opens left

vertex: (-4, 3)
$4p = -16$
$p = -4$
$FW = 16$

**Write the equation of an
hyperbola that has foci at
(0,6) and (0,-6) and the
length of the transverse
axis is 8.**

**Write the equation of an
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(0,6) and (0,-6) and the
length of the transverse
axis is 8.**

$c = 6$ $a = 4$ $b = ??$
$36 = 16 + b^2$
$b^2 = 20$

$$\boxed{\frac{y^2}{16} - \frac{x^2}{20} = 1}$$

Write the parametric equations of the conic section:

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

Write the parametric equations of the conic section: ← hyperbola

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

$$x = -1 + 3\tan t$$
$$y = -3 + 2\sec t$$

Write the equation of the conic section in standard form:

$$5y^2 - 6x^2 + 12x + 20y + 44 = 0$$

Write the equation of the conic section in standard form:

$$5y^2 - 6x^2 + 12x + 20y + 44 = 0$$

$5y^2 + 20y - 6x^2 + 12x = -44$

$5(y^2 + 4y \underline{+4}) - 6(x^2 - 2x \underline{+1}) = -44 \underline{+20} + \underline{-6}$

$5(y+2)^2 - 6(x-1)^2 = -30$
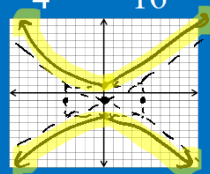
$$\frac{(x-1)^2}{5} - \frac{(y+2)^2}{6} = 1$$

Graph the hyperbola:

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

Graph the hyperbola:

vertical →

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

center: $(0,-1)$
$a = 2$
$b = 4$

Write the conic section in standard form:

$$y^2 - 8y - 8x = -24$$

Write the conic section in standard form:

$$y^2 - 8y - 8x = -24$$

$$y^2 - 8y = 8x - 24$$

$$y^2 - 8y + \underline{16} = 8x - 24 + \underline{16}$$

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

$$\boxed{(y-4)^2 = 8(x-1)}$$

Write the parametric equations for the conic section:

$$\frac{(x+1)^2}{64} - \frac{(y-11)^2}{36} = 1$$

Write the parametric equations for the conic section:

$$\frac{(x+1)^2}{64} - \frac{(y-11)^2}{36} = 1$$

center: $(-1, 11)$

$$\boxed{\begin{array}{l} x = -1 + 8\sec t \\ y = 11 + 6\tan t \end{array}}$$

Find the coordinates of the foci of the conic section:

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

Find the coordinates of the foci of the conic section:

horizontal!

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

center: $(4, -2)$

$$c^2 = a^2 + b^2$$
$$c^2 = 4 + 36$$
$$c^2 = 40$$
$$c = 2\sqrt{10}$$

$$\boxed{\begin{array}{l} \text{foci: } (4 + 2\sqrt{10}, -2) \\ (4 - 2\sqrt{10}, -2) \end{array}}$$
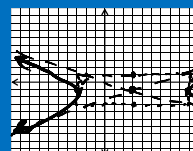
4

Graph the hyperbola:

$$\frac{(x-3)^2}{36} - \frac{y^2}{4} = 1$$
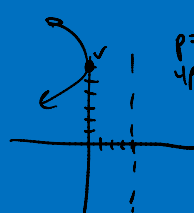

Graph the hyperbola:

horizontal

$$\frac{(x-3)^2}{36} - \frac{y^2}{4} = 1$$

center: $(3,0)$
$a = 6$
$b = 2$

Write the equation of a parabola that has a directrix at x = 4 and the vertex is at the point (0, 6).

Write the equation of a parabola that has a directrix at x = 4 and the vertex is at the point (0, 6).
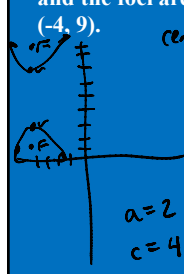
$p = 4$
$4p = 16$

$(y-6)^2 = -16x$

Write the equation of a hyperbola that has endpoints of the transverse axis at (-4, 3) and (-4, 7) and the foci are at (-4, 1) and (-4, 9).

Write the equation of a hyperbola that has endpoints of the transverse axis at (-4, 3) and (-4, 7) and the foci are at (-4, 1) and (-4, 9).

center: $(-4, 5)$

$$\frac{(y-5)^2}{4} - \frac{(x+4)^2}{12} = 1$$

$a = 2$
$c = 4$ $16 = 4 + b^2$
$b^2 = 12$

Write the parametric equations of the conic section:

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

Write the parametric equations of the conic section:

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

$$x = 4 + 2t$$
$$y = -1 + t^2$$