

Conic Sections Exploration

Refers to
a Cone

The surface created when slicing through a cone
(a cross-section)

For this exploration use this window on the Graphing Calculator:

X:[-9.4,9.4] Y:[-6.2,6.2]

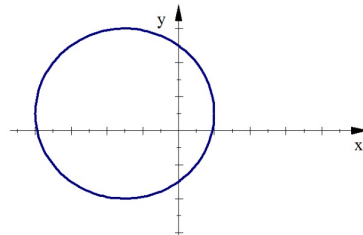
For each part do the following:

- Solve the equation for y then enter both equations into the graphing calculator.
- Sketch what you see in the calculator screen on the given axes.
- Describe or give a name to the graph.

Part 1 EQ: $(x + 3)^2 + (y - 1)^2 = 25$

a) $y =$

$$y = \pm \sqrt{25 - (x + 3)^2} + 1$$

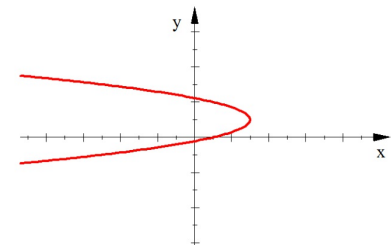


c) Name or Description **CIRCLE**

Part 2 EQ: $-2(y - 1)^2 + 3 = x$ b)

a) $y =$

$$y = \pm \sqrt{\frac{x - 3}{-2}} + 1$$

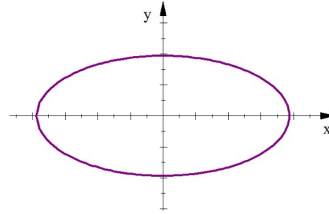


c) Name or Description **parabola**

Part 3 EQ: $\frac{x^2}{60} + \frac{y^2}{15} = 1$

a) $y = \pm \sqrt{\left(1 - \frac{x^2}{60}\right)15}$

b)

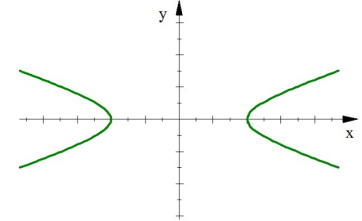


c) Name or Description **ELLIPSE**

Part 4 EQ: $\frac{x^2}{16} - \frac{y^2}{2} = 1$

a) $y = \pm \sqrt{-2\left(1 - \frac{x^2}{16}\right)}$

b)



c) Name or Description **HYPERBOLA**