

Using a graphing calculator graph the following in Y_1 using a standard window.

$$Y_1 = x^2$$

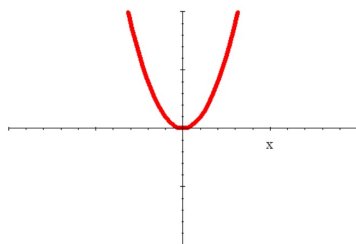
$$X_{\min} = -10$$

$$X_{\max} = 10$$

$$Y_{\min} = -10$$

$$Y_{\max} = 10$$

This is the Parent Quadratic Function

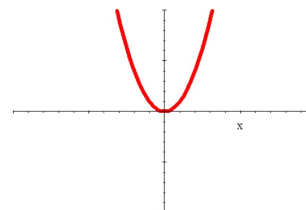


Leave $Y_1 = x^2$

In Y_2 enter equations like this : $Y_2 = ax^2$ using different POSITIVE values for a . Notice how the graph changes and make some conclusions about what the value of a does to the graph.

$$Y_1 = ax^2$$

$$a = 1$$



Big POS values make it narrow

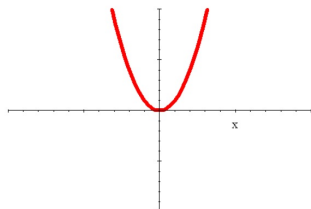
Small POS values make it wide

Leave $Y_1 = x^2$

In Y_2 enter equations like this : $Y_2 = ax^2$ using different NEGATIVE values for a . Notice how the graph changes and make some conclusions about what the value of a does to the graph.

$$Y = ax^2$$

$$a = 1$$



When a is NEGATIVE the parabola is upside down.

Big Neg values make it narrow
Small Neg values make it wide.

Complete each statement.

$$y = ax^2$$

- When a is positive and bigger than 1 the graph
narrower & opens up
- When a is positive and between 0 and 1 the graph
wider & opens up
- When a is negative the graph
opens down

Put the following quadratic functions in order from Widest to Narrowest:

- A. $y = x^2$
- B. $y = 7x^2$
- C. $y = 0.75x^2$
- D. $y = 0.2x^2$
- E. $y = 3x^2$

Widest

D
C
A
E
B

Narrowest

Match each equation to its graph.

D $y = 0.25x^2$

C $y = -5x^2$

E $y = 2x^2$

A $y = -0.1x^2$

F $y = 10x^2$

B $y = -x^2$

