



Discovering Graph Shape

Quadratic Functions

For each set of graphs, determine how the changing number changes the shape or position of the graph.

1. Graph the following Functions:

$$y = x^2 \quad y = x^2 + 1 \quad y = x^2 + 2 \quad y = x^2 - 1 \quad y = x^2 - 2$$

How do these changing numbers change the position of the graph?

2. Graph the following Functions:

$$y = x^2 \quad y = (x + 1)^2 \quad y = (x + 2)^2 \quad y = (x - 1)^2 \quad y = (x - 2)^2$$

How do these changing numbers change the position of the graph?

3. Graph the following Functions:

$$y = x^2 \quad y = (2x)^2 \quad y = (3x)^2 \quad y = (-1x)^2 \quad y = (-2x)^2 \quad y = (-3x)^2$$

How do these changing numbers change the position of the graph?

4. Graph the following Functions:

$$y = x^2 \quad y = 2(x)^2 \quad y = 3(x)^2 \quad y = -1(x)^2 \quad y = -2(x)^2 \quad y = -3(x)^2$$

How do these changing numbers change the position of the graph?

If a, b, c, and d represent real numbers, then the general form of a Quadratic functions can be written as:

$$y = a(bx + c)^2 + d$$

How do a, b, c, and d change the shape or position of the graph?

a:

b:

c:

d: