

Read before you begin.

Using this link below, go to the online graphing interface:

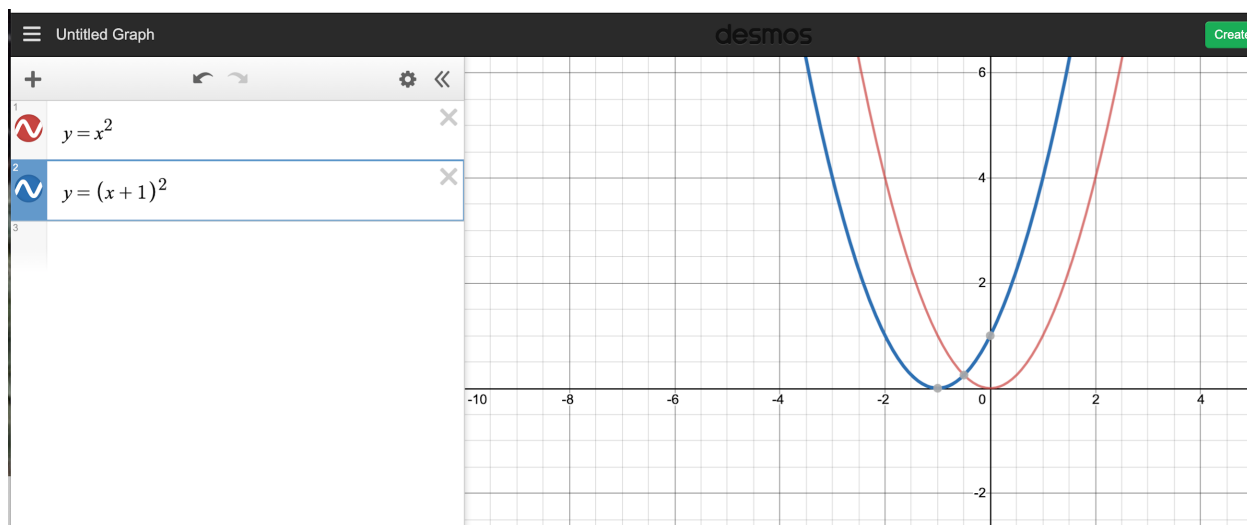
[Online Graphing Interface](#)

First for each function below (and in the Transformations Investigation Worksheet), graph it using the interface from above, along with the parent function. Then after making your observations, Beside each function or relation on the worksheet give the following information:

- **Mention the parent function**
- **Write succinctly in words (a phrase), how the graph of the function or relation differs from their parent graphs.**

Here is an example:

For the graph of $y = (x + 1)^2$, I drew the function and its parent function $y = x^2$ on the online graphing interface and got this:



So on the Transformations Investigation Worksheet I write (Note PF stands for 'Parent Function'):

$$y = (x + 1)^2 \text{ PF : } y = x^2 \text{ PF Moved to the left by 1 unit.}$$

Do this for each function given below in your worksheet:

$$y = -x^2$$

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

$$y = x^2 + 1$$

$$y = x^2 - 1$$

$$y = 2x^2$$

$$y = \left(\frac{1}{2}\right)x^2$$

$$y = -x^3$$

$$y = (x + 1)^3$$

$$y = x^3 + 1$$

$$y = x^3 - 1$$

$$y = 2x^3$$

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

$$y = -|x|$$

$$y = |x + 1|$$

$$y = |x - 1|$$

$$y = |x| + 1$$

$$y = |x| - 1$$

$$y = 2|x|$$

$$y = 0.5|x|$$

$$y = 0.5(x - 2)^{-3}$$

$$y = \frac{1}{3}|x| - 1$$

$$y = 2(x + 1)^{-2} - 2$$

$$y = \frac{-1}{x}$$

$$y = \frac{1}{x-1}$$

$$y = \frac{1}{x+1}$$

$$y = \frac{1}{x} + 1$$

$$y = \frac{2}{x} - 1$$

$$y = -\sqrt{x}$$

$$y = \sqrt{x+2}$$

$$y = \sqrt{x-2}$$

$$y = \sqrt{x} + 2$$

$$y = 2\sqrt{x+2}$$

$$x = -y^2$$

$$x = y^2 + 1$$

$$x = y^2 - 1$$

$$x + 1 = y^2$$

$$x - 1 = y^2$$

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

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