

Math III

sing Parent Graphs and Transformations

For the problems below, state what parent function it is built from, state transformations that are taking place, sketch each step in **different colors** and check your final solutions on a graphing calculator.

$$f(x) = -3|x - 4| + 9$$

Parent Function:

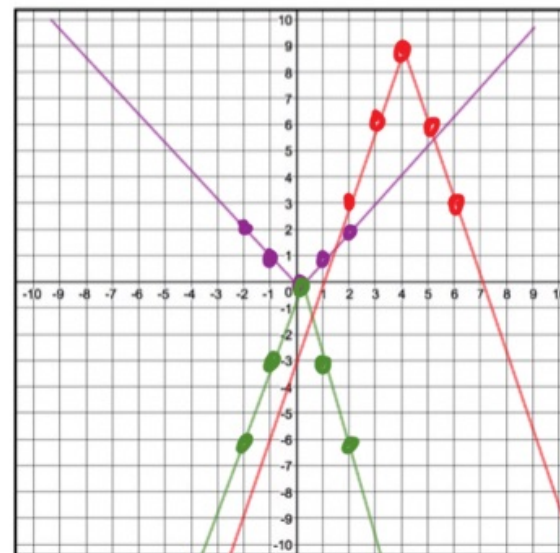
$f(x) = |x|$ absolute value

Parent with multiplier and what it means:

$f(x) = -3|x|$ mult "y" values by -3

Parent with multiplier and shifts and what it means:

$f(x) = -3|x - 4| + 9$ move graph 4 right and 9 up.



$$f(x) = -\sqrt{x} + 8$$

Parent Function:

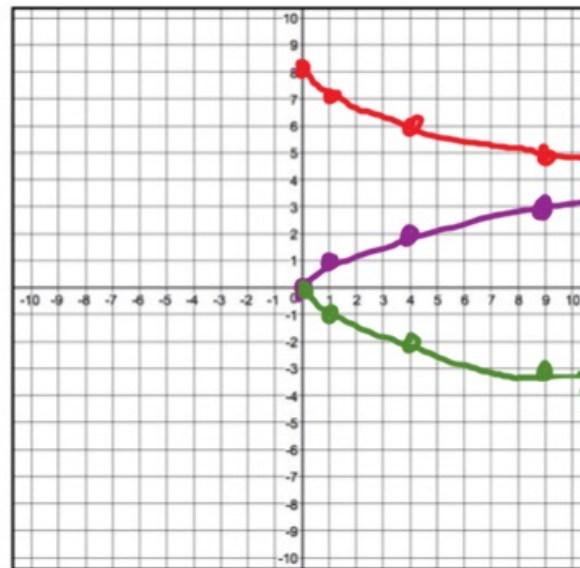
$$f(x) = \sqrt{x} \text{ square root}$$

Parent with multiplier and what it means:

$$f(x) = -\sqrt{x} \text{ mult "y" values by -1 (reflect over x-axis)}$$

Parent with multiplier and shifts and what it means:

$$f(x) = -\sqrt{x} + 8 \text{ move graph up 8}$$



$$f(x) = -0.5(x-5)^3$$

Parent Function:

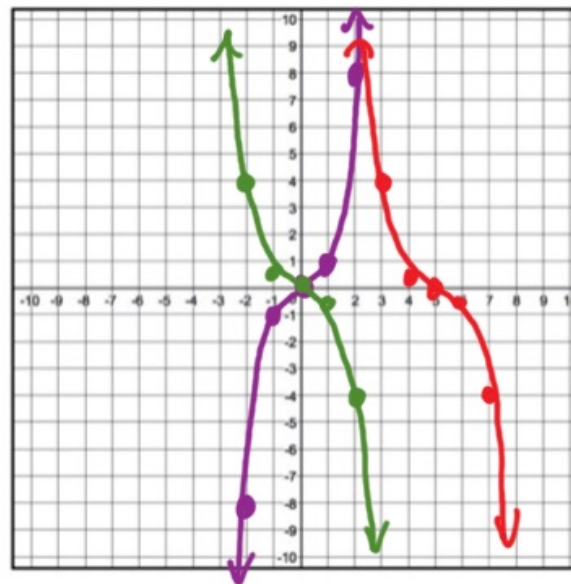
$$f(x) = (x)^3 \quad \text{cubic}$$

Parent with multiplier and what it means:

$$f(x) = -0.5x^3 \quad \text{mult "y" values by } -0.5$$

Parent with multiplier and shifts and what it means:

$$f(x) = -0.5(x-5)^3 \quad \text{move graph } 5 \text{ right!}$$



$$f(x) = -(x+5)^2 - 3$$

Parent Function:

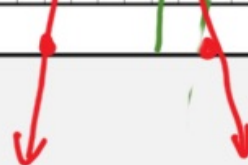
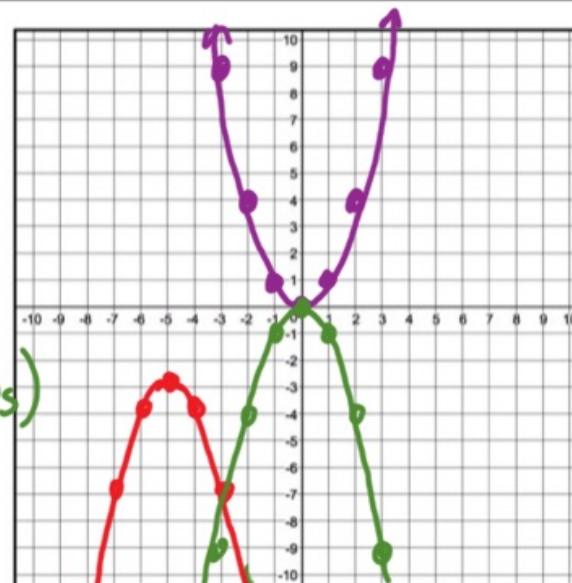
$$f(x) = x^2 \text{ quadratic}$$

Parent with multiplier and what it means:

$$f(x) = -x^2 \text{ mult "y" values by } -1 \text{ (reflect about x-axis)}$$

Parent with multiplier and shifts and what it means:

$$f(x) = -(x+5)^2 - 3 \text{ move graph } 5 \text{ left down } 3$$



$$f(x) = 2\sqrt[3]{x-2} - 3$$

Parent Function:

$$f(x) = \sqrt[3]{x}$$

Parent with multiplier and what it means:

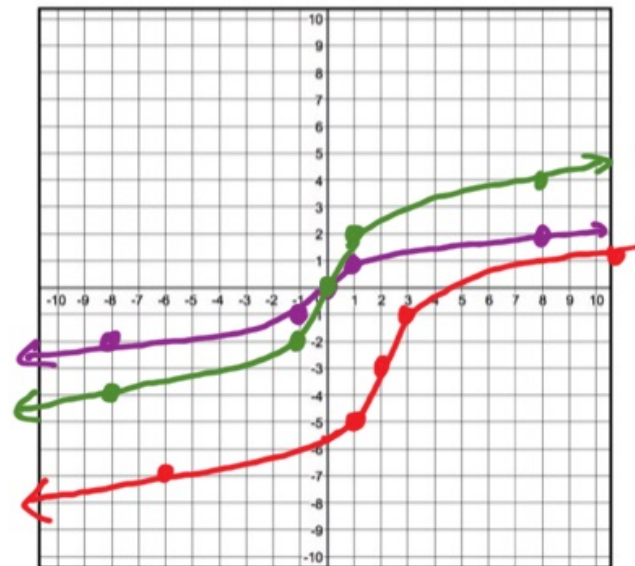
$$f(x) = 2\sqrt[3]{x}$$

mult all "y" values by 2.

Parent with multiplier and shifts and what it means:

$$f(x) = 2\sqrt[3]{x-2} - 3$$

move graph right 2 and down 3



$$f(x) = 2|x + 6| - 6$$

Parent Function:

$$f(x) = |x| \text{ absolute value}$$

Parent with multiplier and what it means:

$$f(x) = 2|x| \text{ mult all "y" values by 2}$$

Parent with multiplier and shifts and what it means:

$$f(x) = 2|x + 6| - 6 \text{ move graph 6 left and 6 down.}$$

