Parent Functions....

Match the following graphs with the equations using your calculator. Then, identify what the function is and figure out what the "Parent Function" is

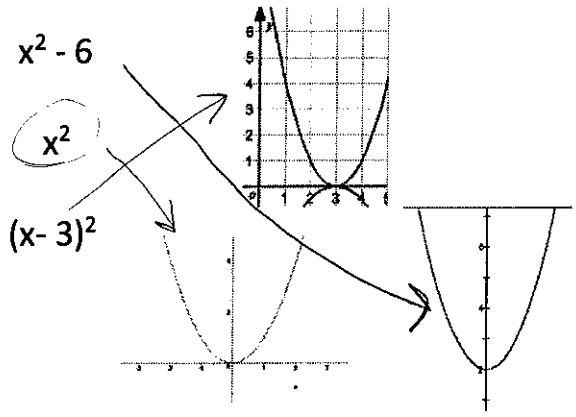
Function Name Quadratic

Parent Function x^2

$x^2 - 6$

x^2

$(x-3)^2$



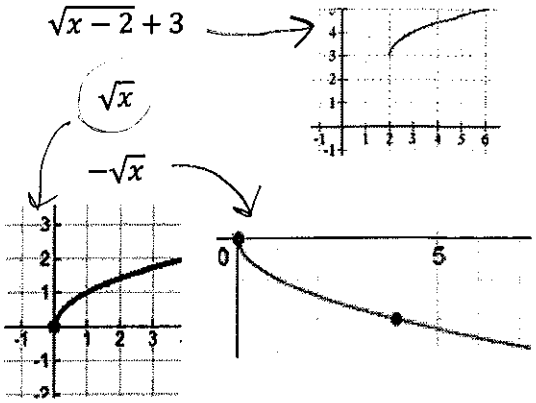
Function Name Radical / Sq. Root

Parent Function $\sqrt{x}$

$\sqrt{x-2}+3$

$\sqrt{x}$

$-\sqrt{x}$



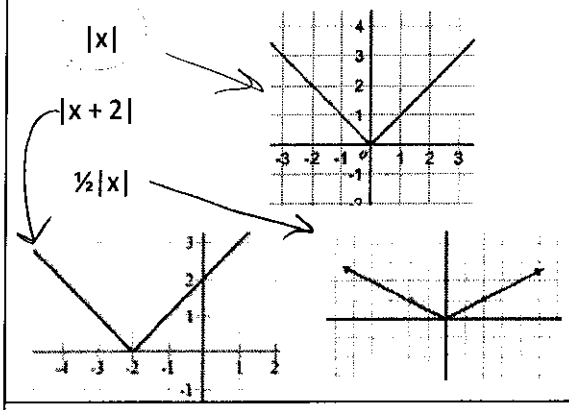
Function Name Absolute Value

Parent Function $|x|$

$|x|$

$|x+2|$

$\frac{1}{2}|x|$

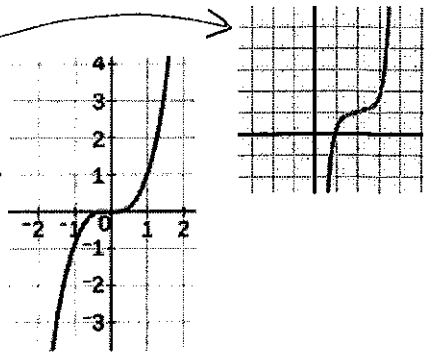


Function Name Cubic

Parent Function x^3

x^3

$(x-2)^3+1$



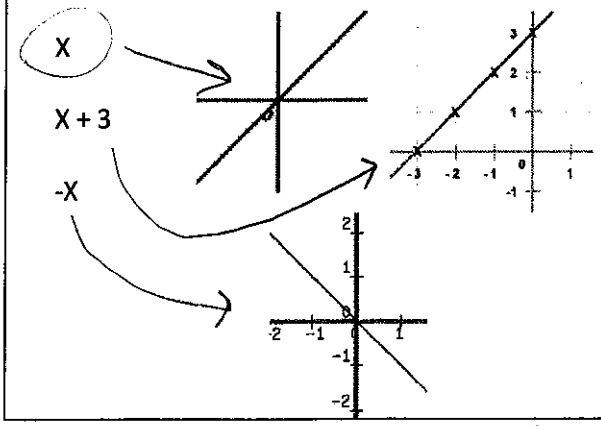
Function Name Linear

Parent Function x

x

$x+3$

$-x$

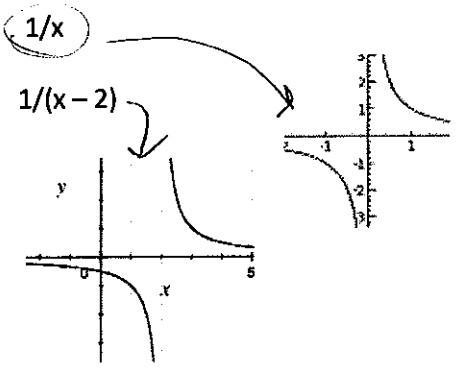


Function Name Reciprocal

Parent Function $\frac{1}{x}$

$1/x$

$1/(x-2)$



Define. What is a parent function? Simplest form of a function, the "base"

....and their Transformations

Using the desmos activity and the other side of this sheet, conclude on the transformation rules:

To move a function....	*You.....*	
Horizontal Translation	**Right:**	Subtract inside paranthesis/ absolute value symbol/radical ex: $(x-3)^2$ moves x^2 3 to right
Horizontal Translation	**Left:**	Add inside paranthesis/radical/ absolute value symbol ex: $(x+4)$ moves x 4 to left
Vertical Translation	**Up:**	Add outside paranthesis, etc ex: x^2+3 moves x^2 up 3
Vertical Translation	**Down:**	Subtract outside paranthesis ex: $x-4$ moves x down 4
Reflection	**Over X-Axis** $-f(x)$ (vs.)	multiply everything by -1 (change all signs so "y" changes) ex: $-(x^2)$ will reflect x^2 over x ex: $-3x-3$ will reflect $3x+3$ over x
Reflection	**Over Y-Axis** $f(-x)$	Change the sign of x ex: $-x^2$ will reflect x^2 over y ex: $-3x+3$ will reflect $3x+3$ over y
Vertical Compression	**Wider:**	Multiply by a number between 0 and 1 ex: $\frac{1}{2}x^2$ will compress x^2 down (wider)
Vertical Stretch	**Skinnier:**	Multiply by a number greater than 1 ex: $2x^2$ will stretch x^2 up (skinnier)

make sure any exponent

You will now create a poster with your group listing the rules you discovered above and providing an example of each. The poster must contain each parent function at least once throughout the examples. This will be graded out of 50 points- 40 points accuracy (5 per rule) & 10 points color and pizazz!