

Geometer's Sketchpad Activity Name _____

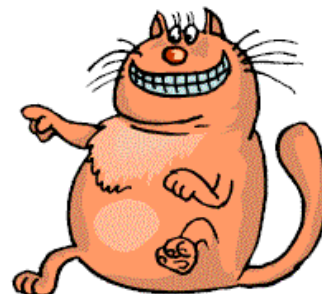
functions.gsp

"Specialty Parent Functions"

1. Constant Function

Describe a constant function: _____

Write a general equation for a constant function: _____



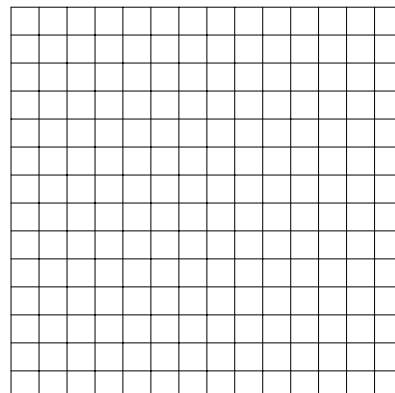
2. Linear Function

Describe the graph when m is positive: _____

Describe the graph when m is negative: _____

Describe what happens to the graph as b changes? _____

Under what conditions is a linear function called the Identity Function? _____



Sketch the Identity Function

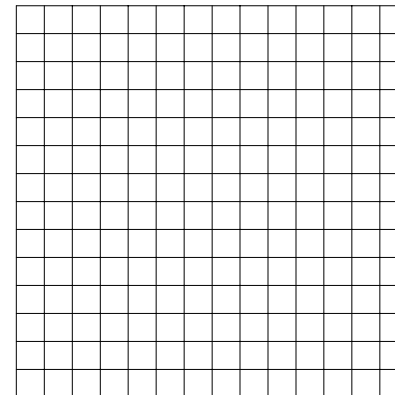
3. Quadratic Function

Write the equation of the parent function. _____

Describe what happens when a changes. _____

Describe what happens when c changes. _____

Does the Quadratic Function have an inverse which is also a function? Explain. _____



Sketch $y = -2x^2 + 4x - 5$

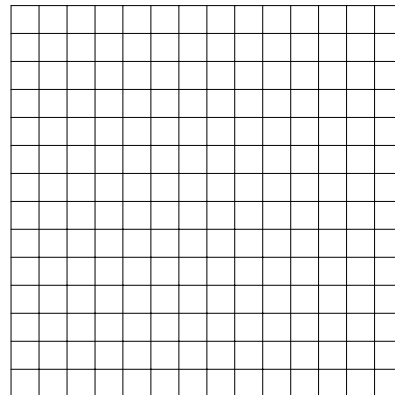
4. Cubic Function

Write the equation of the parent function. _____

Write the equation of the full form function. _____

Sketch the graph $y = 2x^3 + 4x^2 + x + 6$

What is the domain of this new function? _____



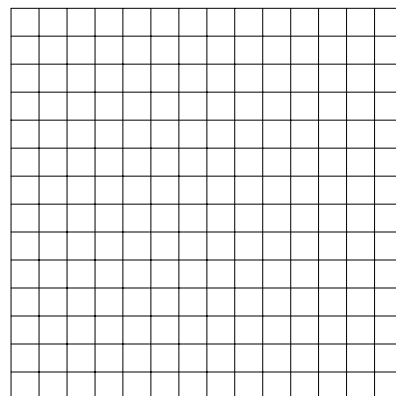
5. Square Root Function

Write the equation of the parent function. _____

What is the domain of the parent function? _____

What is the range of the parent function? _____

Sketch the parent function AND the function obtained when $a = -1$, $b = 0$, and $c = 0$. Is this new sketch a function? Explain.



6. Cube Root Function and Rational Function

Which of these two functions (using the parents) has a domain covering all real numbers? Explain.

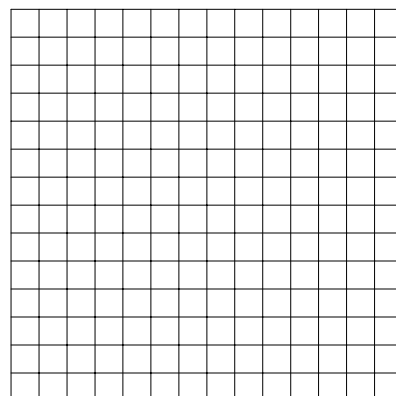
Which of these two functions (using the parents) has a range covering all real numbers? Explain.

7. Absolute Value Function

What is the range of the parent function? _____

Sketch $y = 2|x - 4| + 3$. What is the range of this new sketch?

What value in the full form equation is affecting the range of the sketches? _____



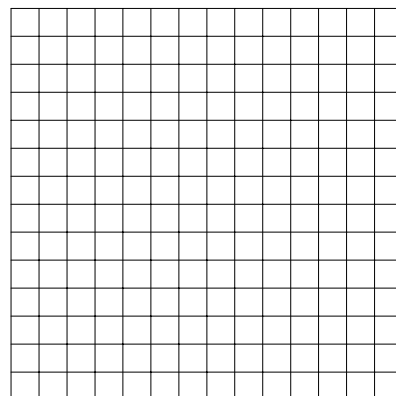
8. Natural Log Function

The graph may appear to stop as it nears the y-axis. Zoom in by enlarging the grid. (*Grab the red dot on the x-axis and drag.*) Sketch the **true** graph of the parent function.

What is the domain of the parent function? _____

What is the range of the parent function? _____

Does the parent function have an inverse which is also a function? Explain. _____



9. Exponential Function

What is the domain of the parent function? _____ the range? _____

Does the parent function have an inverse which is also a function? Explain. _____

Make a hypothesis as to which other function you have seen in this activity might be the inverse of the parent exponential function. _____