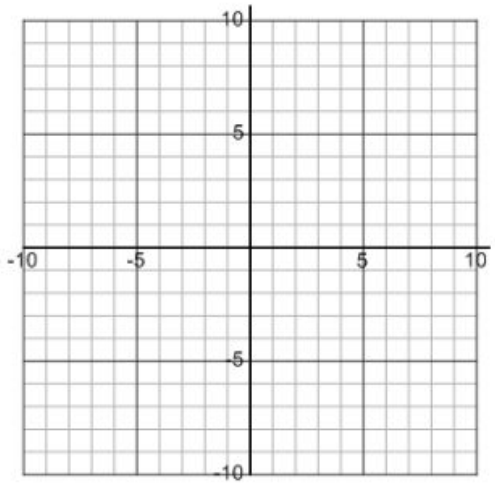
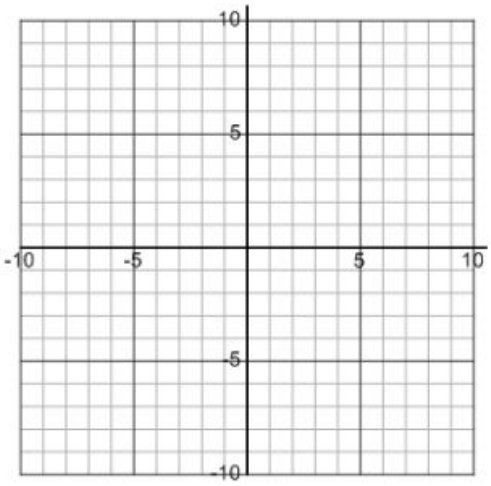
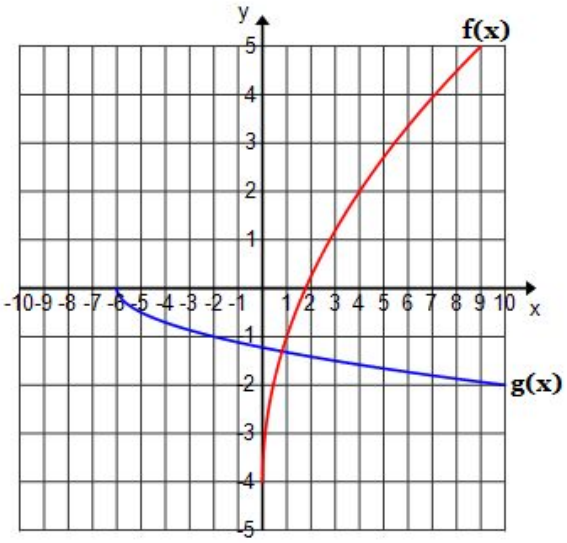
SM3- 1.B Rules of Exponents Day 2- Graphing	Name
1. Describe the transformations and then graph. Label each graph. A. $y = -3\sqrt{x-5}$ Transformations: Reflection in x-axis, y-axis, or none. Stretched or compressed by a factor of _____ Left or Right _____ units Up or Down _____ units B. $y = \sqrt{-x}+2$ Transformations: Transformations: Reflection in x-axis, y-axis, or none. Stretched or compressed by a factor of _____ Left or Right _____ units Up or Down _____ units	
2. Describe the transformations and then graph. Label each graph. If $f(x) = \sqrt{x}$, *graph* A. $g(x) = 2f(-x)$ Transformations: Reflection in x-axis, y-axis, or none. Stretched or compressed by a factor of _____ Left or Right _____ units Up or Down _____ units *B.* $p(x) = f(x+2) - 4$ Transformations: Reflection in x-axis, y-axis, or none. Stretched or compressed by a factor of _____ Left or Right _____ units Up or Down _____ units	
3. Write the equations of the following, and write the transformations: f(x)= Transformations: Reflection in x-axis, y-axis, or none. Stretched or compressed by a factor of _____ Left or Right _____ units Up or Down _____ units g(x)= Transformations: Reflection in x-axis, y-axis, or none. Stretched or compressed by a factor of _____ Left or Right _____ units Up or Down _____ units	

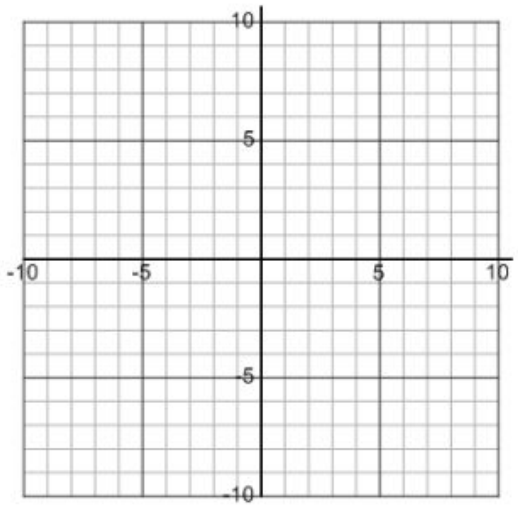
4. Graph and label the following:

A. $y = \frac{-1}{2}\sqrt[3]{x} + 5$

Transformations:
Reflection in x-axis, y-axis, or none.
Stretched or compressed by a factor of _____
Left or Right _____ units
Up or Down _____ units

B. $y = \sqrt[3]{-x} + 2$

Transformations:
Reflection in x-axis, y-axis, or none.
Stretched or compressed by a factor of _____
Left or Right _____ units
Up or Down _____ units



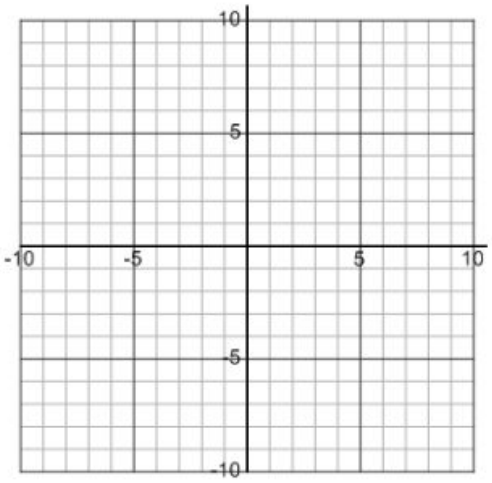
5. Graph and label the following: $f(x) = \sqrt[3]{x}$

A. $g(x) = -3f(x)$

Transformations:
Reflection in x-axis, y-axis, or none.
Stretched or compressed by a factor of _____
Left or Right _____ units
Up or Down _____ units

B. $h(x) = f(x - 3)$

Transformations:
Reflection in x-axis, y-axis, or none.
Stretched or compressed by a factor of _____
Left or Right _____ units
Up or Down _____ units



6. Write in Radical Form:

a. $3x^{\frac{2}{5}}$

b. $(5a)^{1/2}$

7. Simplify:

$$(x^3 5y)^2 - (7x^4 y)(2x^2 y^5)$$

8. Write in exponential form and then simplify:

$$\sqrt[4]{81x^8 y^4}$$

9. Write in exponential form and then simplify:

$$\sqrt[3]{8x^0 y^{12}}$$

10. Solve for y:

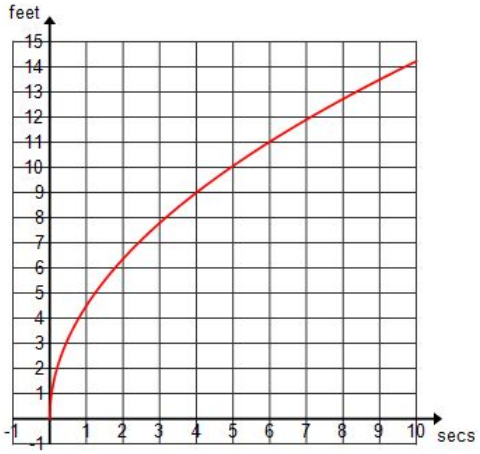
$$-(40y^5 x^2)^0 + 4x + 5 = x + y$$

11. Simplify: $16\left(\frac{1}{4}x^6\right)^{1/2}(4x^5 y^{-2})^0$

12. The 2 functions shown (1 with a table and one with a graph) represent a car moving along a road.

What is the **<u>average rate of change</u>** of each function over the interval [1,4]?

sec	feet
0	0
1	4.2
2	5.9
3	7.3
4	8.4
5	9.4



What units should be used to describe the average rate of change?

Which car do you think will stop sooner? Why?

13. Given the function $g(t) = \sqrt[3]{t} - 2$, describe the end behavior and find the domain and range.

As $t \to -\infty$, $g(t) \to$ _____

As $t \to \infty$, $g(t) \to$ _____

Domain of g: _____

Range of g: _____

14. Given the function $y = \sqrt{-x} + 1$, describe the end behavior and find the domain and range.

As $x \to -\infty$, $y \to$ _____

As $x \to \infty$, $y \to$ _____

Domain: _____

Range: _____

15. Solve this equation for x:

$$\frac{3x - y}{y^5} = y^4 z$$

16. Simplify:

$$(4^{2x}3^{5x})(4^{3x}3^{6x})$$

Bonus: 21. The length of a rectangle is 5 less than twice the width. The area is 50 square feet. Draw a picture and write an equation for the Area.