Trig 3.2

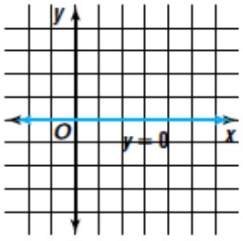
Identify families of graphs
Sketch graphs of related functions
Identify transformations of graphs

family of graphs

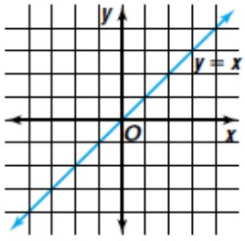
parent graph

Quiz Tues(?). 3.1-3.2

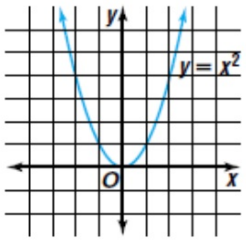
constant function

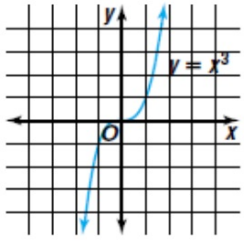


identity function

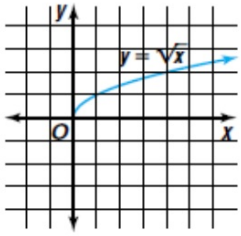


polynomial functions

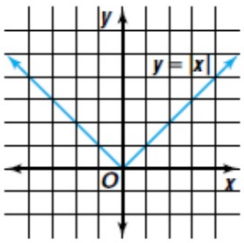




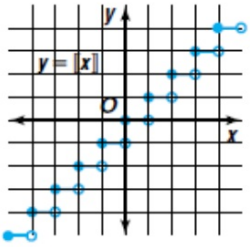
square root function



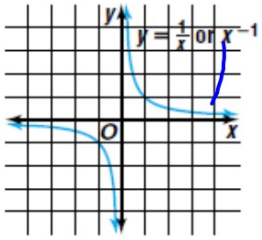
absolute value function

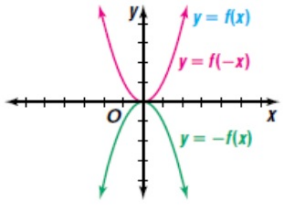
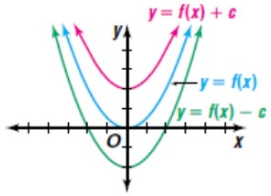
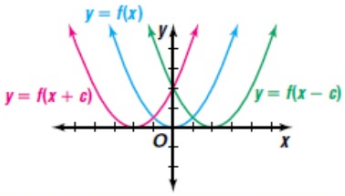


greatest integer function

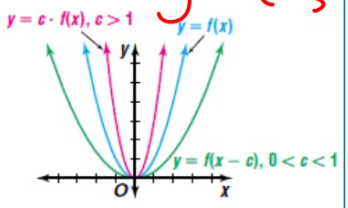
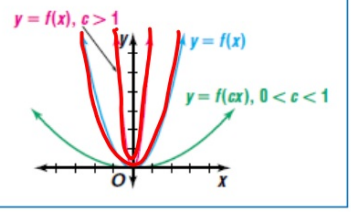


rational function



Change to the Parent Function $y = f(x)$, $c > 0$	Change to Parent Graph	Examples
Reflections		
$y = -f(x)$	Is reflected over the x-axis.	
$y = f(-x)$	Is reflected over the y-axis.	
Translations		
$y = f(x) + c$	Translates the graph c units up.	
$y = f(x) - c$	Translates the graph c units down.	
$y = f(x + c)$	Translates the graph c units left.	
$y = f(x - c)$	Translates the graph c units right.	

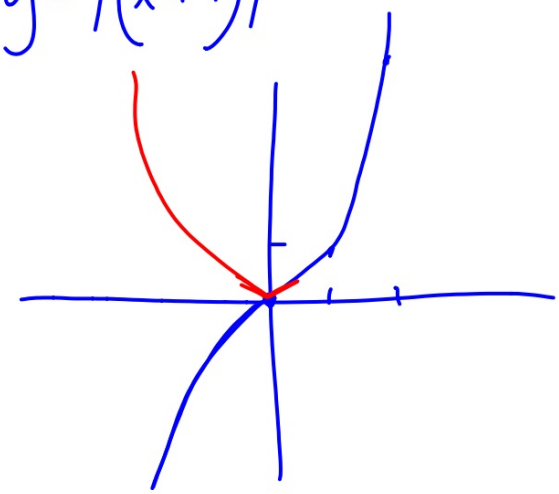
p140 $y = f\left(\frac{1}{3}x\right)$ $y = x^2$ $y = (2x)^2$ $y = \left(\frac{1}{3}x\right)^2$

Change to the Parent Function $y = f(x)$, $c > 0$	Change to Parent Graph	Examples
Dilations		
$y = c \cdot f(x)$, $c > 1$ $y = c \cdot f(x)$, $0 < c < 1$	Expands the graph vertically. Compresses the graph vertically.	
$y = f(cx)$, $c > 1$ $y = f(cx)$, $0 < c < 1$	Compresses the graph horizontally. Expands the graph horizontally.	

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

1

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



$$y = [\![x-2]\!] + 1$$

Determine whether each graph is symmetric with respect to the *x*-axis, the *y*-axis, the line $y = x$, the line $y = -x$, the origin, or none of these. (Lesson 3-1)

1. $x^2 + y^2 - 9 = 0$

2. $5x^2 + 6x - 9 = y$

Whiteboards

3. $x = \frac{7}{y}$

4. $y = |x| + 1$

Use the graph of the given parent function to describe the graph of each related function. (Lesson 3-2)

5. $f(x) = [\![x]\!]$

a. $y = [\![x]\!] - 2$

b. $y = -[\![x - 3]\!]$

c. $y = \frac{1}{4}[\![x]\!] + 1$

6. $f(x) = x^3$

a. $y = 3x^3$

b. $y = (0.5x)^3 - 1$

c. $y = (x + 1)^3 + 4$

7. Sketch the graph of $g(x) = -0.5(x - 2)^2 + 3$.
(Lesson 3-2)