

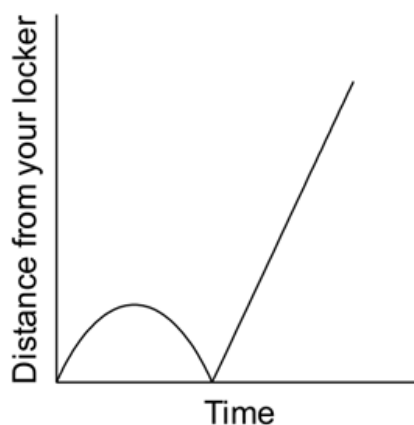
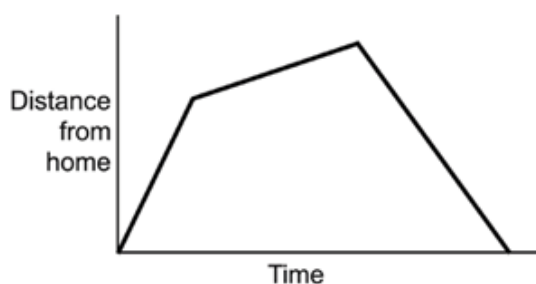
## REVIEW

# Transformations Unit

- Review together in class today
- Take home ART to stay fresh
- Test next class.

**Get your white boards out we will use them!!**

Tr T-1: I can interpret graphs that model real world scenarios.



Determine a story for each graph, independent and dependent variables and what the y intercept means.

Tom left his home for a run, but he was unfit and gradually came to a stop!

Tom skateboarded from his house, gradually building up speed. He slowed down to avoid some rough ground, but then speeded up again.

Draw a graph to describe the situation...

Label all parts!

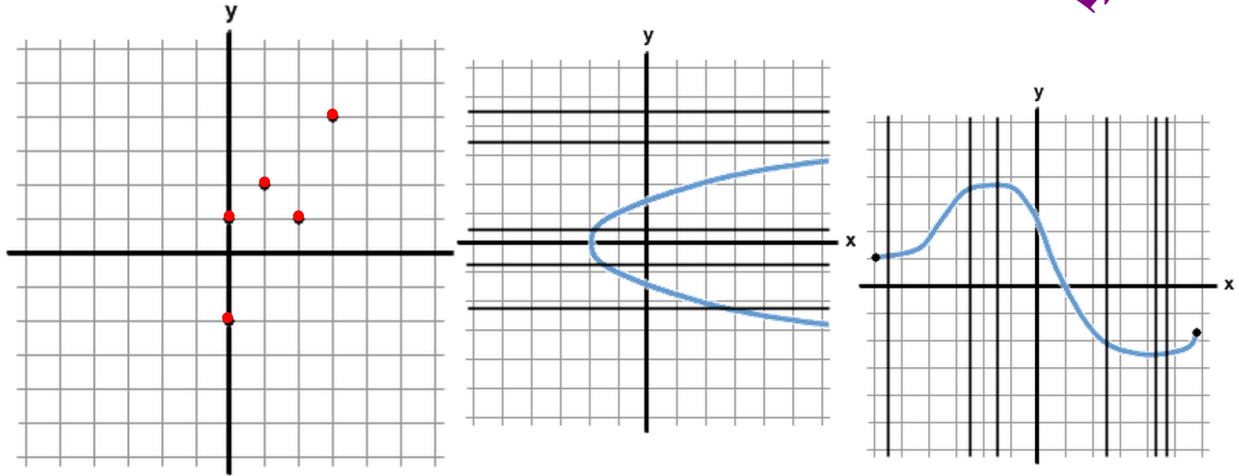
You are start to walk to school, you walk for 20 minutes then stop at Fred Meyer for 5 minutes. You leave there continuing your walk to school for ten minutes when you realize you forgot your math homework and you run home in 15 minutes.

Tr T-2: I can identify functions and use function notation

**Relation** Any relationship between two variables

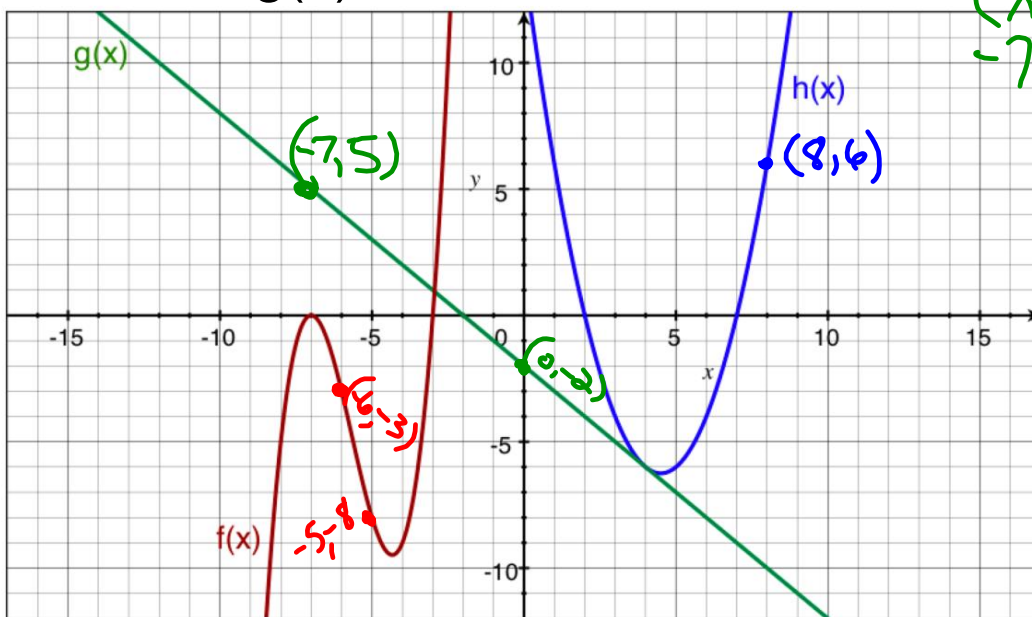
**Function** (for every  $x$  there is only one  $y$ )

VERTICAL  
LINE  
TEST



$y = f(x)$     Read as... "y equals f of x"  
 $f(-5) = -8$      $f(-6) + g(0) = -5$      $2h(8) = 2 \cdot 6 = 12$   
 $g(x) = 5$ , what is  $x$ ?

$(x, 5)$   
 $-7 = x$



$$\text{Given } f(x) = 4x^2 + 3$$

$$f(-3) = 4(-3)^2 + 3$$

$$f(-3) = 4 \cdot 9 + 3$$

$$f(-3) = 36 + 3$$

$$f(-3) = 39$$

$$\text{Given } f(x) = 3x + 7$$

Find  $f(x-3)$

$$f(x-3) = 3(x-3) + 7$$

$$f(x-3) = 3x - 9 + 7$$

$$f(x-3) = 3x - 2$$

Given  $f(x) = x^2 - 2$

Find  $x$  if  $f(x) = 2$

$$2 = x^2 - 2$$

$$+2 \quad +2$$

$$\sqrt{4} = \sqrt{x^2}$$

$$\pm 2 = x$$

$y = f(x)$  Read as... "y equals f of x"

Given  $f(x) = 3x$

find...  $f(3) = 9$

$2f(1/3) = 2$

$2 + f(x - 5) = 3x - 13$

$x$  if  $f(x) = 27$        $x = 9$

$\frac{27}{3} = \frac{3x}{3}$        $x = 9$

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

$$2 \cdot f(4)$$

$$2 \cdot \underline{\quad} =$$

$$f(4) =$$

$$f(x) = -x^2 - 10$$

$$f(-3)$$

$$4 \cdot f(2) + 1$$

$$f(x) = x^2 - 75$$

$$\text{Find } x \text{ if } f(x) = 6$$

$$6 = x^2 - 75$$

$$+75 \quad +75$$

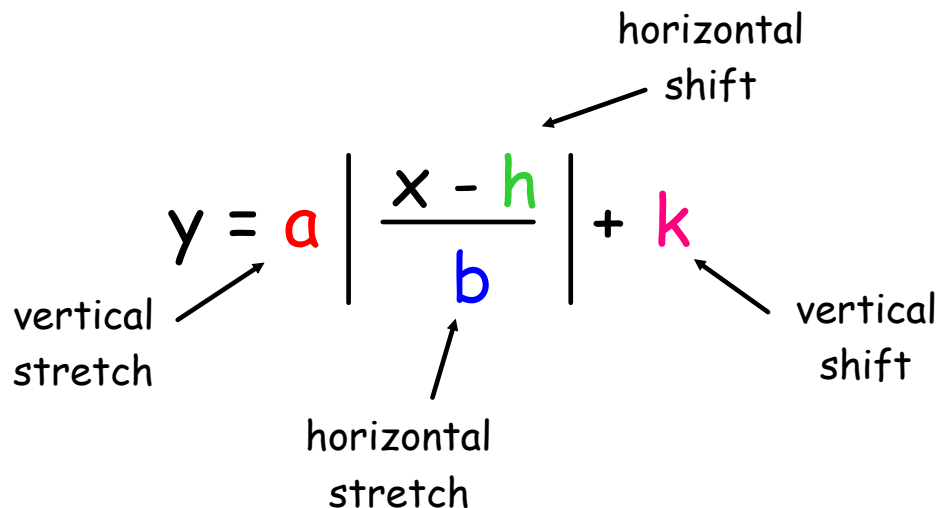
$$\sqrt{81} = \sqrt{x^2}$$

$$x = \pm 9$$

Tr T-3: I can transform equations and explain the motion.

**Horizontal: Inside and Opposite**

**Vertical: Outside and same**



Describe how the graph has changed compared to its parent, note vertex, D, R.

$f(x) = (x - 2)^2$  Right 2, (2, 0) D: x all R R:  $y \geq 0$

$f(x) = 3\sqrt{x} + 5$  Up 5, Vert. Stretch by 3. (0, 5) D:  $x \geq 0$  R:  $y \geq 5$

$f(x) = -4|x + 10| - 3$  Left +10, Down 3, Vertical St of 4, Vert Flip over x-axis.

$f(x) = (-\frac{x}{2})^2 - 7$  (-10, -3) D: x all R R:  $y \leq -3$

Down 7, Horiz Flip over y axis Horiz. st by 2. (0, -7) D: x all R R:  $y \geq -7$

Write an equation for the description, note D&R.

① Translate  $f(x) = |x|$  down 5 units and flip it across the x axis.

$$y = -|x| - 5$$

② Translate  $f(x) = x^2$  by vertically stretching it by 2, then move it to the right 3 units.

$$y = 2(x-3)^2$$

③ Translate  $f(x) = \sqrt{x}$  to the left 7 units, up 4 units, horizontally stretch it by 5 and then flip it over the y axis.

$$y = \sqrt{-\frac{x+7}{5}} + 4$$

Tr T-4: I can graph equations that have been transformed.

Graph the following Equations.

$$y - 2 = |x - 3|$$

$$y = 2(x + 2)^2 - 3$$

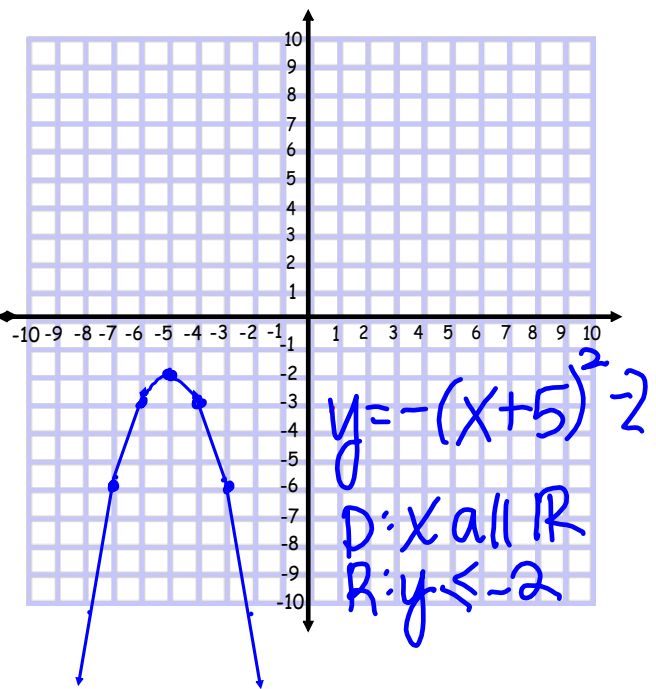
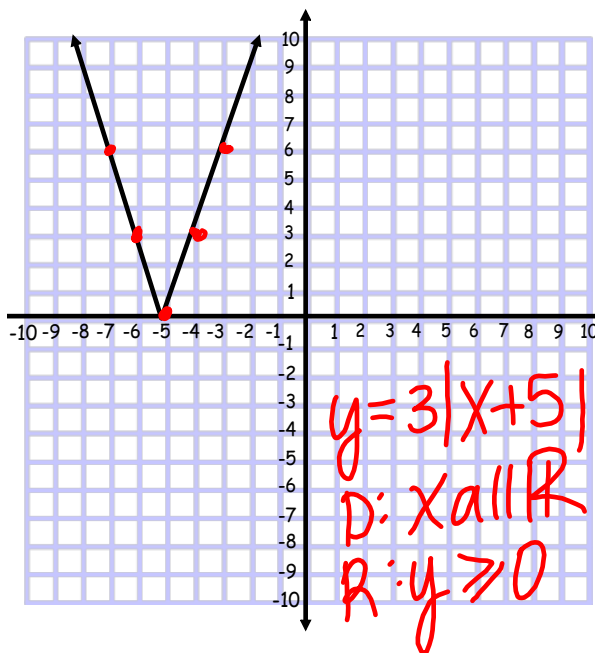
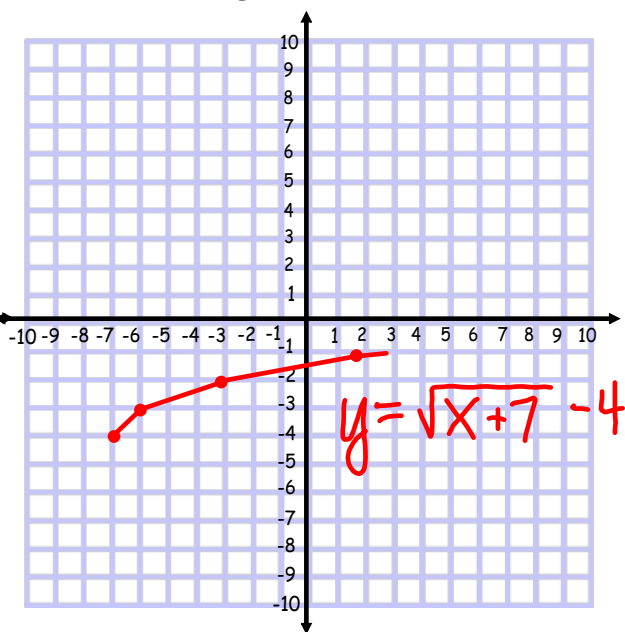
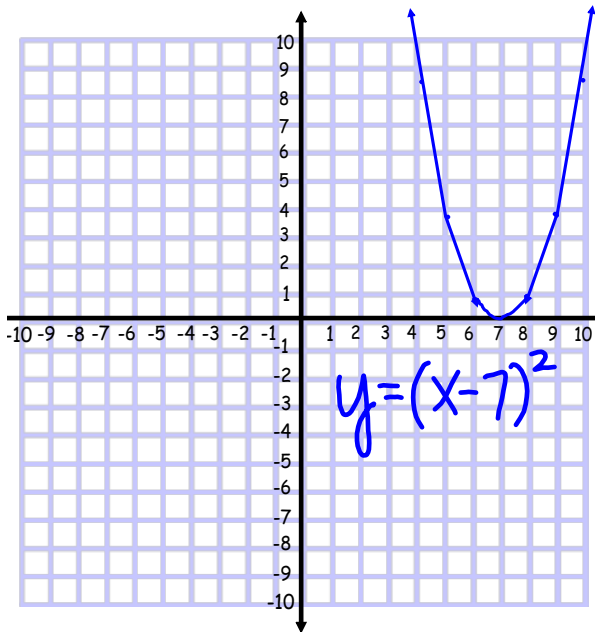
$$y = \sqrt{-\frac{x-1}{2}}$$

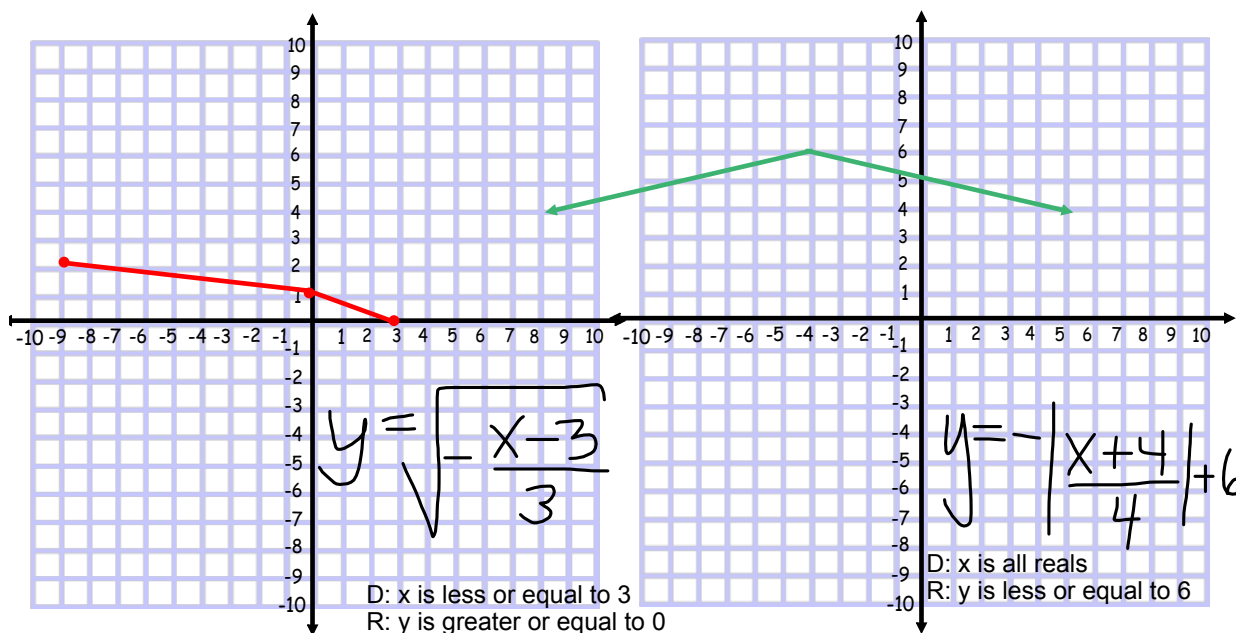
*Don't Forget  
Domain &  
Range*



**Tr T-5: I can write equations of linear, quadratic, square root, and absolute value graphs.**

Write an equation for the given graph. Determine what the parent function is and the domain and range.





Here is your Take home ART!!

I will post answers tonight on the website so you can check your answers and hopefully ask questions Tuesday before the test on Wed.