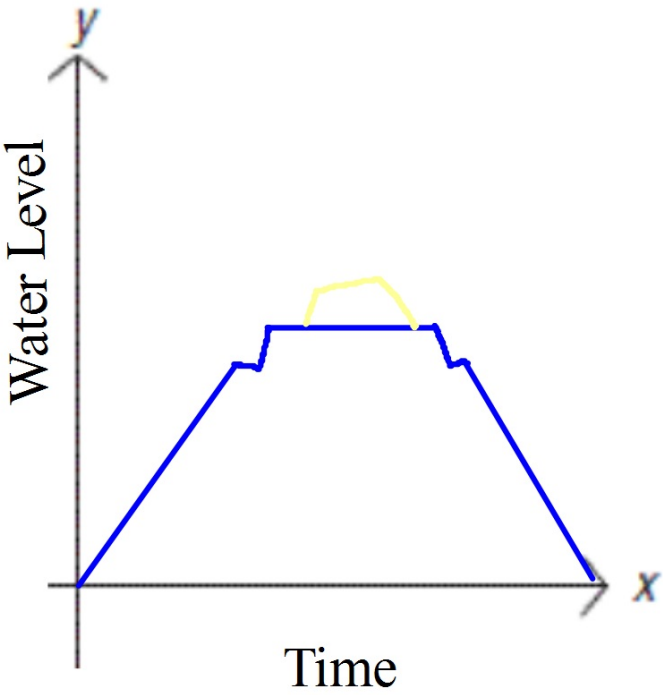
Lesson 4-5: Direct Variation

Algebra Bellwork - December 9, 2011

Sketch a graph for this function.

The height of water in the bathtub from the time you start filling it up, to the time it is empty after your bath.

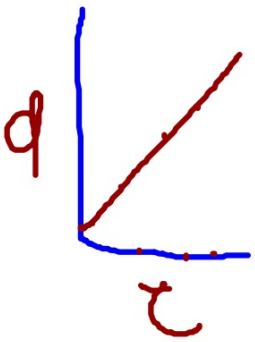


Objective: Today we will derive equations of direct variation from tables of values.

Language Objective: Today we will describe, in writing, a situation that could be modeled by a given equation.

How fast is this car going? Is it changing speed?

Time (hrs)	Distance (miles)
1	30
2	60
3	90
4	120



Direct Variation

A function that looks like this: $y = kx$

Time (hrs)	Distance (miles)
1	30
2	60
3	90
4	120

x y

$y = 30x$

$y = Kx$

$90 = K \cdot 3$

$\frac{90}{3} = \frac{K \cdot 3}{3}$

$30 = K$

Which functions are direct variations?

k like this: y = kx?)

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

Direct Variation

A function that looks like this: $y = kx$

Which functions are direct variations?
(Does it look like this: y = kx?)

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

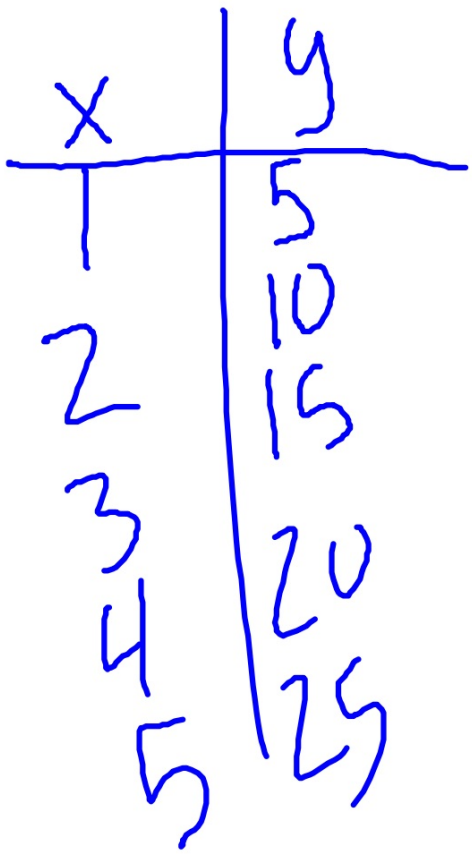
$y = -5x$

$y = 3x + 1$ no!

$3y - 6x = 0$

$3y - 6x = 0$
$+6x \quad +6x$
$\frac{3y}{3} = \frac{6x}{3}$
$y = 2x$

With a parnter, write a story about the situation that could be modeled by the equation $y=5x$.



Write an equation of the direct variation that includes the point (-15, 3)

x y

$y = kx$

$3 = k(-15)$

$\frac{3}{-15} = \frac{-15k}{-15}$

$-\frac{1}{5} = k$

$y = -\frac{1}{5}x$