# What's Going On?

**Checking In**

**Minds on** How Much? How Many?

**Action!** Direct Variation

**Consolidation** Vortex

**Learning Goal - I will be able to identify Direct Variation!**

## Checking In

LGL

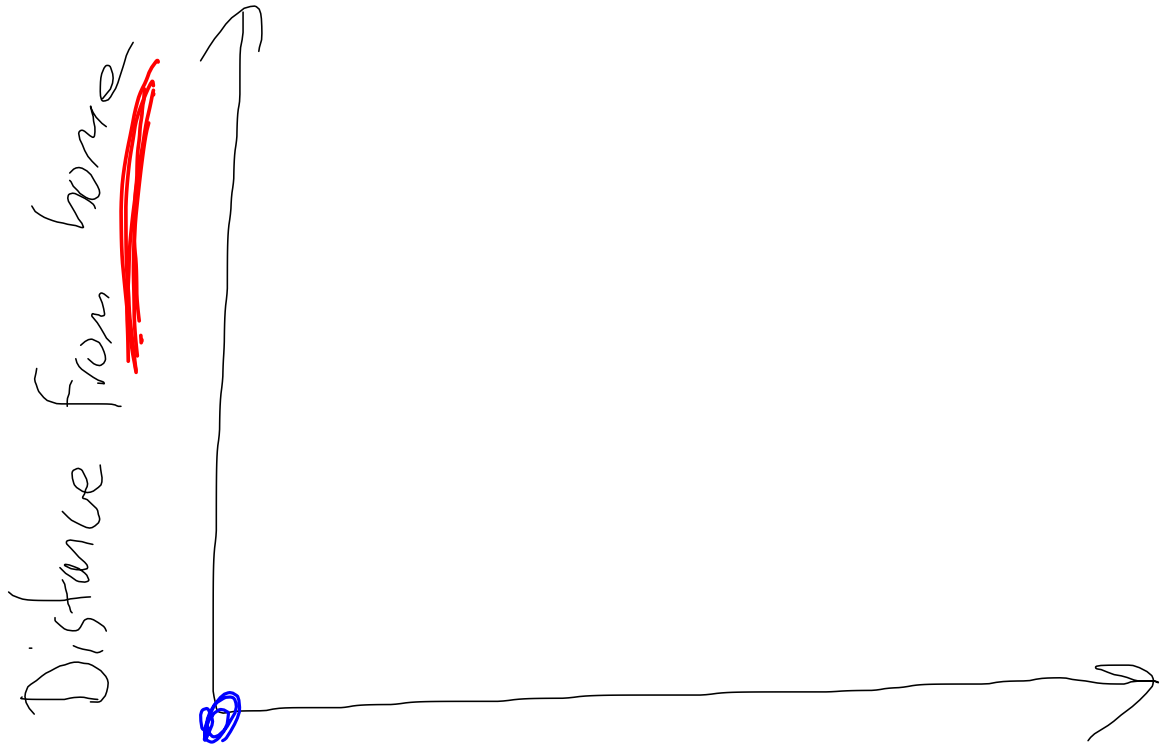
Draw a distance-time graph for the following situation.

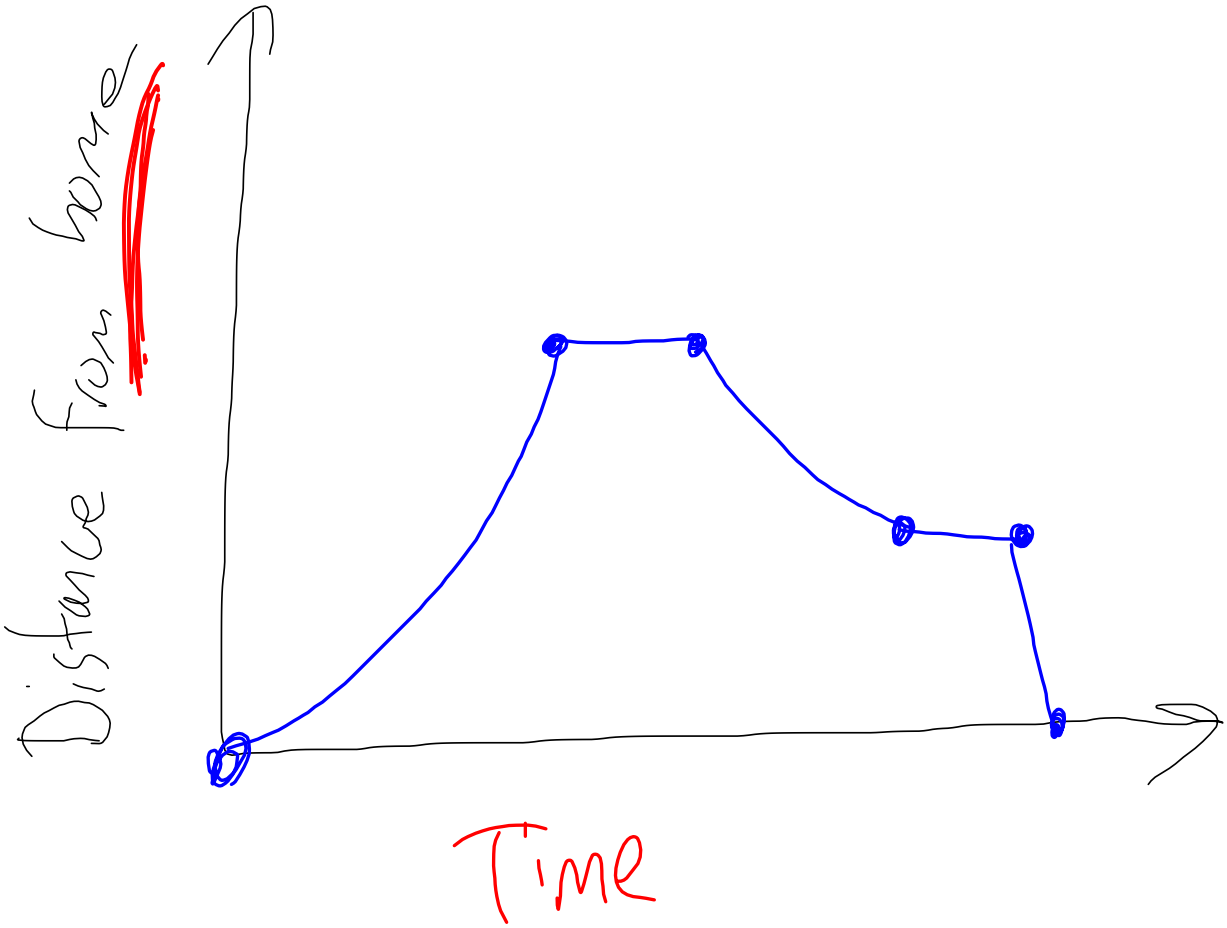
Mr. Gilbert starts from his home on a bike ride.

For the first part of the ride he travels away from home at an increasing speed. After a time, he stops and takes a break.

Then, he begins riding towards home, starting fast and gradually slowing down. When he is halfway back, he stops for few minutes.

Then, he races home at a constant pace, and at the fastest speed he has travelled so far.


Distance from home


Distance from home
Time

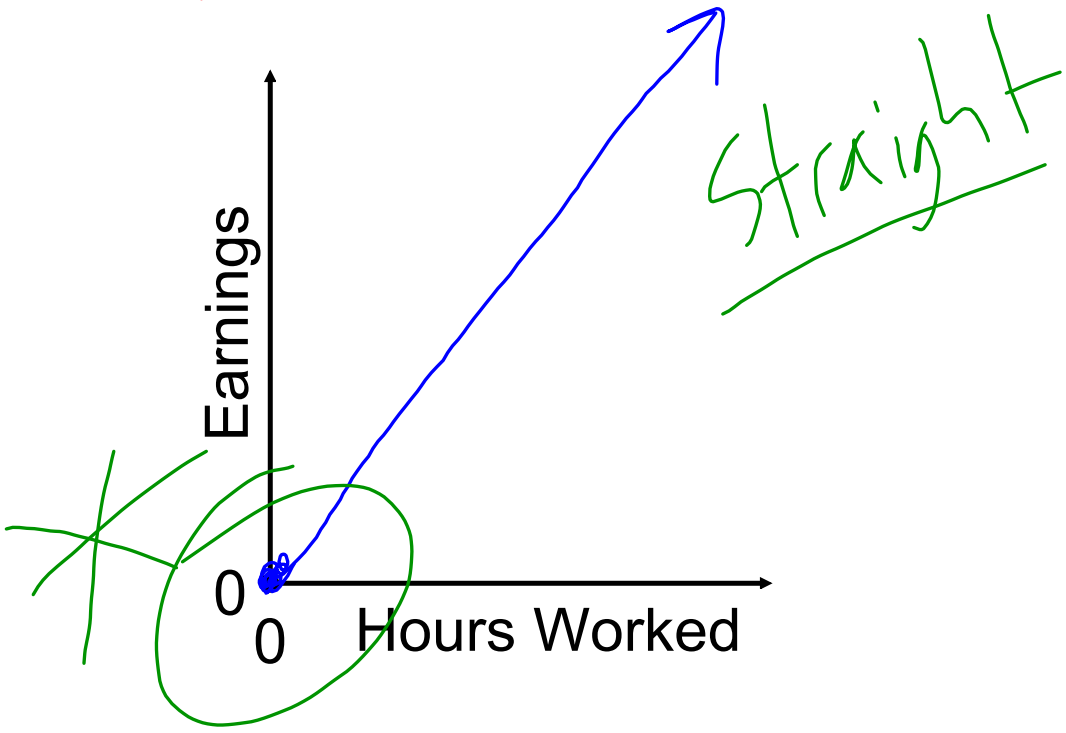
## Minds on

How Much?

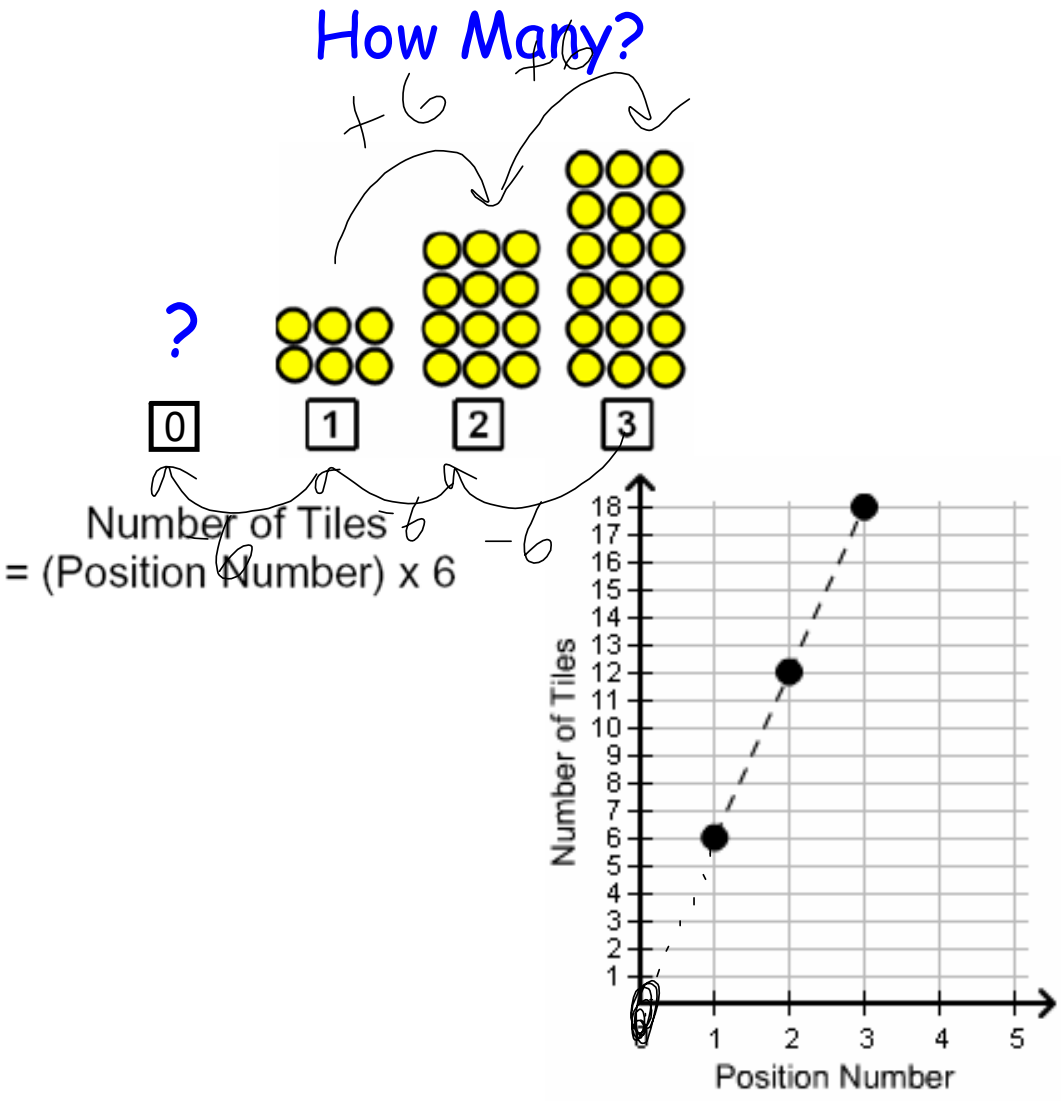
Mr. Gilbert makes $130 an hour teaching math.

Create an expression to model Mr. Gilbert's earnings.

$E = 130h$

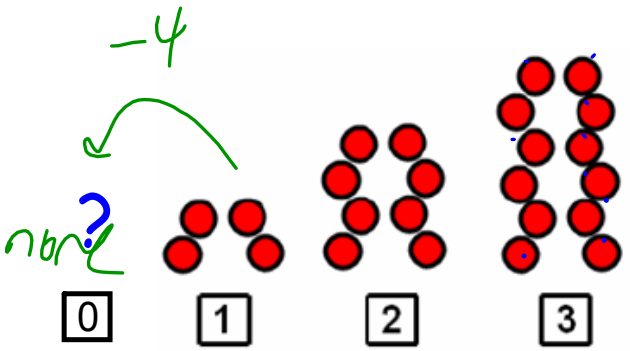


## Minds on


How Many?
+6
+6
?
0
1
2
3
Number of Tiles
= (Position Number) x 6
Number of Tiles
Position Number

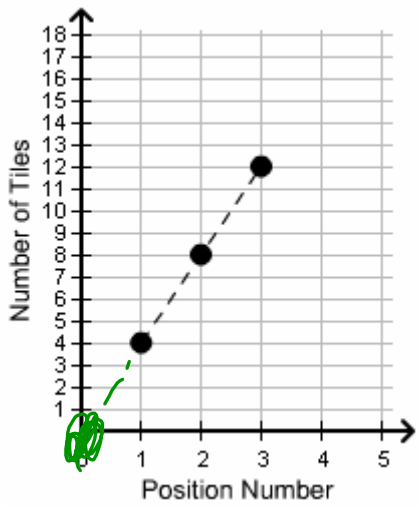
## Minds on

How Many?




$N = 4P$

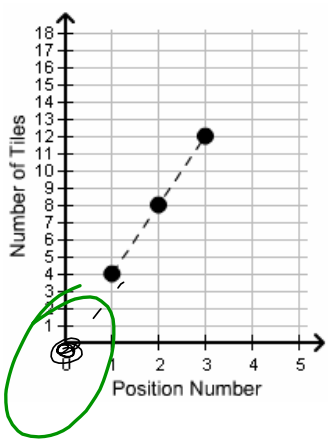
Number of Tiles
= (Position Number) x 4

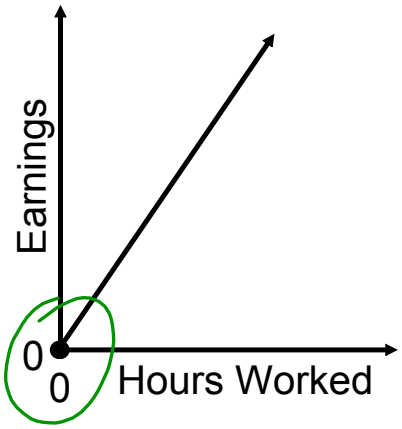


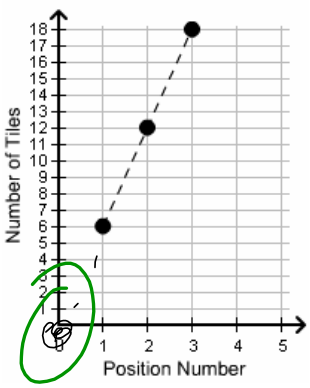
## Action!

# Direct Variation

These are all examples of **Direct Variation**




$E = 130h$

## Action!

# What is Direct Variation?

$E = 130h$

E is a multiple of h.

**Direct Variation**

A relationship between two variables in which one variable is a constant multiple of the other.

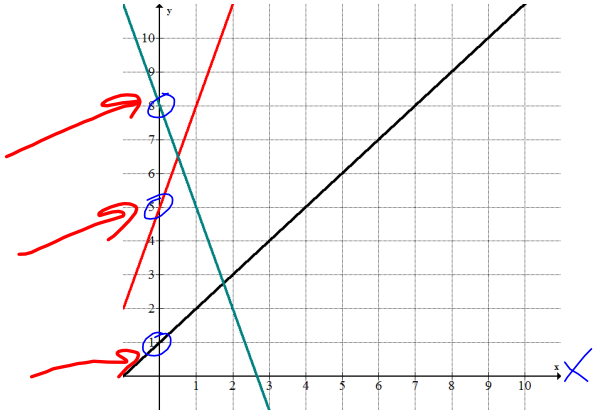
***The dependent variable is a constant multiple of the independent variable.

**When the independent variable is zero, the dependent variable is also zero.

## Action!

# Direct Variation

$y = 2x$
$y = -3x$
$g = 7f$
$s = 0.5t + 0$



$y = 2x + 5$
$y = -3x - 2$
$a = b + 7$
$E = 10h + b$

## Action!

## What is a Constant of Variation?

**Constant of Variation**

$E = 130h$

The ratio of corresponding values of the variables.
(dependent variable OVER independent variable)

The ***k*** or coefficient in y = ***k***x. $E = 130h$

The constant that is multiplied by the independent variable.

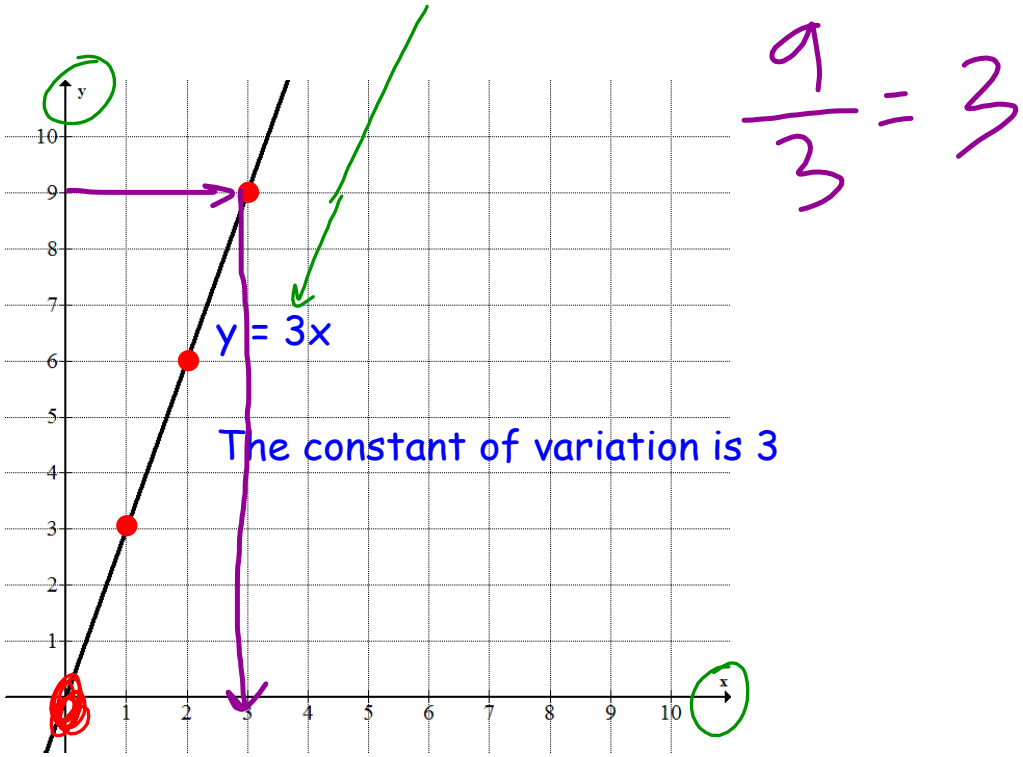
$E = 130h$ ← ind. var

Also known as a constant multiple.

*ONLY IN DIRECT VARIATION

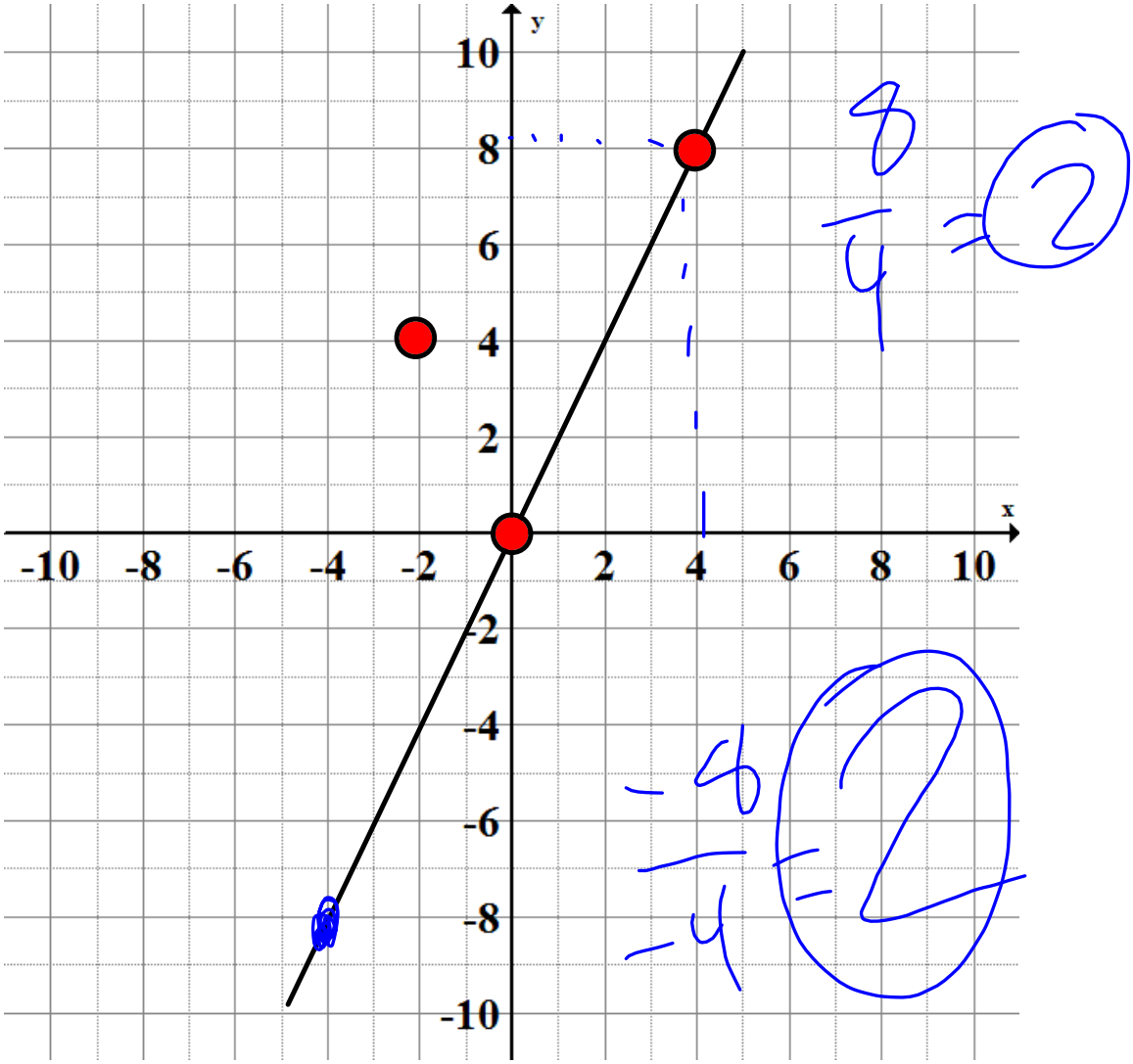
## Action!

### Constant of Variation



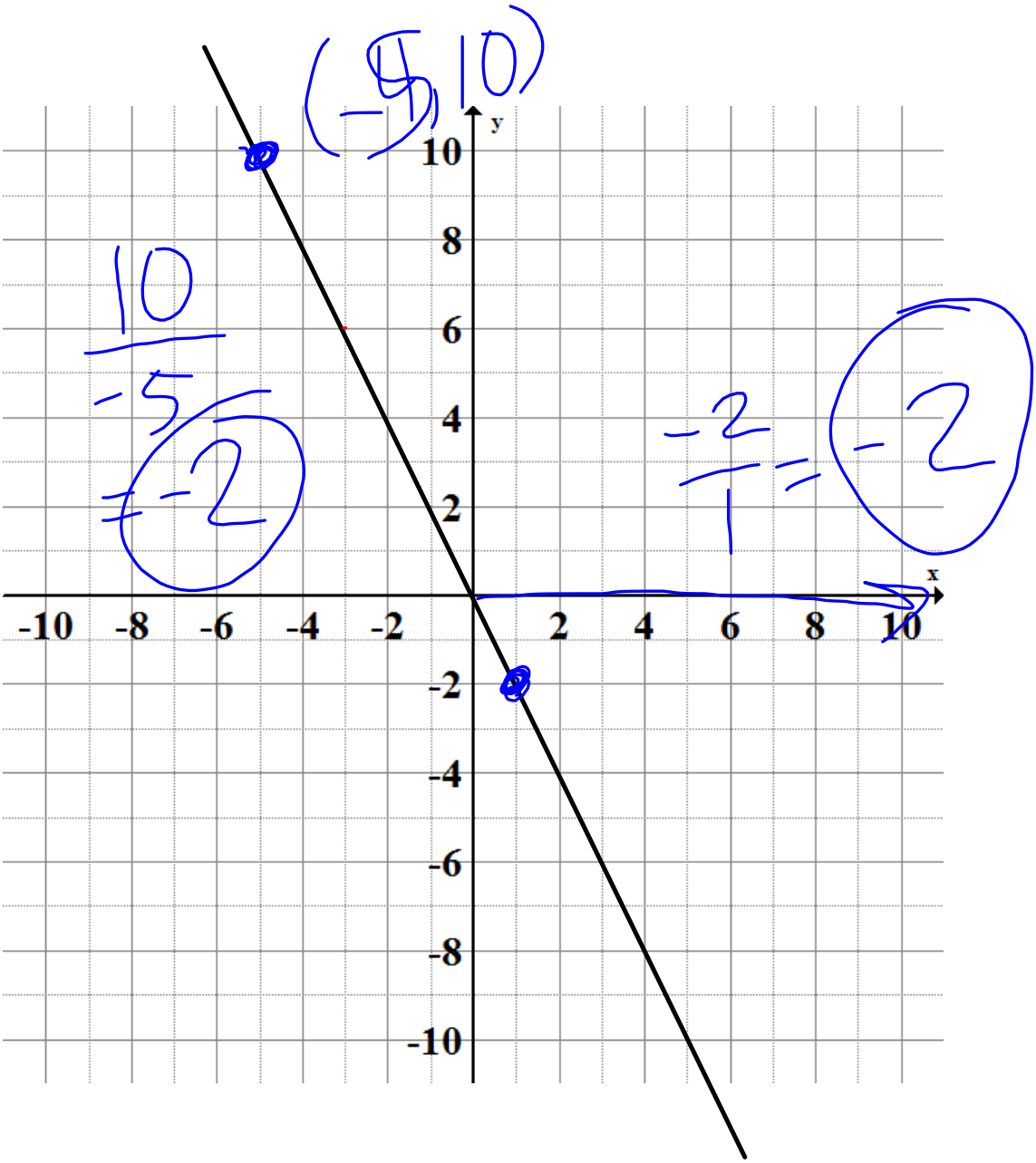
## Action!

# Constant of Variation



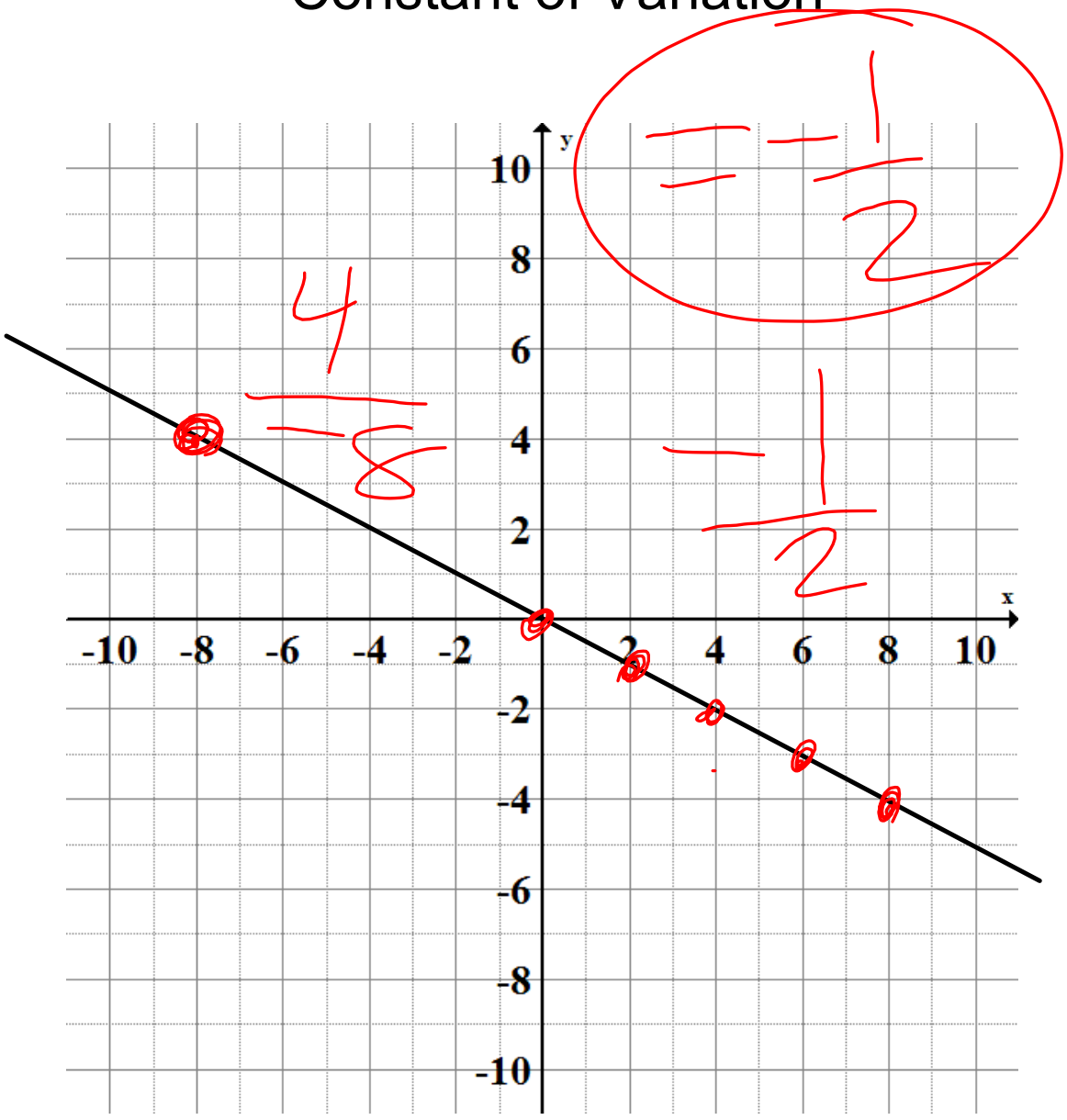
## Action!

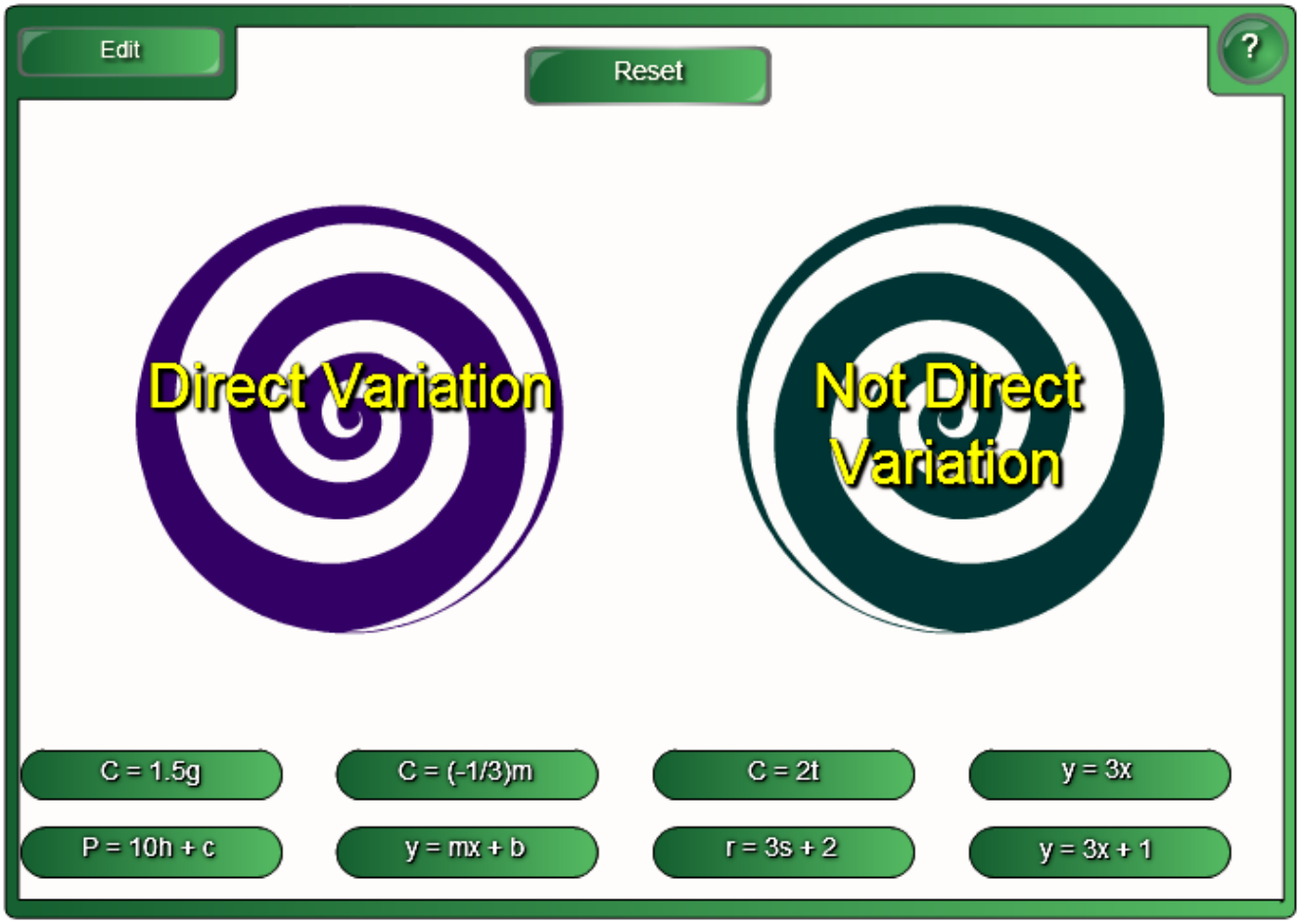
### Constant of Variation



## Action!

Constant of Variation




Edit
Reset
?
Direct Variation
Not Direct Variation
C = 1.5g
C = (-1/3)m
C = 2t
y = 3x
P = 10h + c
y = mx + b
r = 3s + 2
y = 3x + 1

## Consolidation

### What's the Constant of Variation?

The price of oranges varies directly with the mass purchased.

3.5 pounds of oranges costs $5.25.

a. What's the constant of variation?

$\frac{\$5.25}{3.5\text{ lb}} = \$1.50/\text{lb}$

b. Write an equation to represent the cost of oranges.

$C = 1.50m$ (m: mass of oranges; C)

c. Determine the cost of 12 pounds of oranges.

$C = 1.50(12)$

$= 18$

∴ $18 for 12 pounds.