The relationship between the two sets of data on your sheet is an example of DIRECT VARIATION

When two quantities have a CONSTANT RATIO

Graph of Direct Variation is always a Line that passes through the Origin

Two equations for Direct Variation are: $\frac{y}{x} = k$ and $y = kx$

In these Direct Variation Equations: $\frac{y}{x} = k$ and $y = kx$

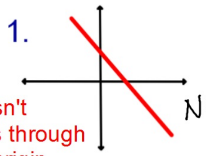
What does the letter k represent?

- The Variation Constant
- The slope of the line.

For Direct Variation, ignoring Pos or Neg

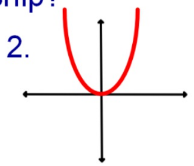
As one quantity increase the other quantity also increases

Does each graph represent a Direct Variation relationship?

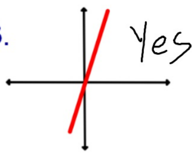
1. 

NO

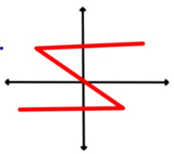
doesn't pass through the origin

2. 

NO Not a line

3. 

Yes

4. 

NO not a line and it's not even a function

Does each table of values represent a Direct Variation relationship?

1. No

X	Y	Y/X
6	28.5	4.75
11	52.25	4.75
19	89	4.68
26	119.6	
42	201.6	

Since the 3rd ratio is not the same as the first two we don't have a constant ratio.

2. No

X	Y	Y/X
4	5.4	> 1
14	18.9	> 1
22	21.6	< 1
27	36.45	
34	45.9	

Just by noticing that the first two rows give a # >1 and the third row is a #<1 it becomes obvious that we don't have a constant ratio.

Direct Variation Equations:

$\frac{y}{x} = k$ or $y = kx$

Is each equation direct variation?
If yes, find the variation constant.

1. $4x + 2y = 10$

$y = \frac{10 - 4x}{2}$

$y = 5 - 2x$

since b isn't zero this eq. isn't direct Variation

2. $6 + 7y = 5 - 3x + 1$

$6 + 7y = 6 - 3x$
$-6 \qquad\quad -6$

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

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

$K = \frac{-3}{7}$

Since this is the same form as $y = kx$ it is Dir. Var.