A plumber charges $75 to come to your house then they charge $35 per hour to do the repairs.

Model this situation with an equation. Define your variables.

$y = 75 + 35x$

y = total cost x = # of hours spent on repairs

The following equation models the height in feet of a balloon after it has been released. Where t stand for the number of seconds after release.

$h(t) = 20t + 15$

What does the slope represent?

20 → how fast balloon is Rising (rate of change in this situation) in ft/sec

What does the y-intercept represent?

15 → initial height

You went to the store to buy some baseballs and/or tennis balls.
Baseballs cost $5 each and tennis balls cost $2 each.
You spent a total of $60.

Model this situation with an equation using the following variables:
b = # of baseballs t = # of tennis balls.

(b, t) $5b + 2t = 60$

Find the intercepts of this equation.

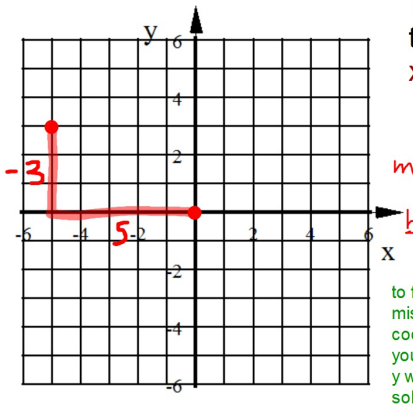
b-int = 12 t-int = 30

What do the intercepts represent?

The b-intercept of 12 (12,0) represents the number of baseballs you could buy if you didn't buy any tennis balls.

The t-intercept of 30 (0,30) represents the number of tennis balls you could buy if you didn't buy any baseballs.

A line passes through the two points on the graph.



The line also passes through the point (x, 144) find the missing x-coordinate.

you could begin by writing the equation of this line

$m = -\frac{3}{5}$ } EQ $y = -\frac{3}{5}x$

$-\frac{5}{3} \cdot 144 = -\frac{3}{5}x \cdot -\frac{5}{3}$

$-240 = x$

to find the missing x coordinate you can replace y with 144 and solve for x.

Lines that pass through the origin have the following equation:

$y = mx$

These lines are called Direct Variation.

When is the only time that a line written in Standard Form will pass through the origin? $Ax + By = C$

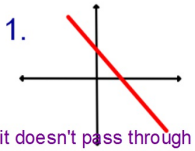
the only time that Standard Form will be Direct Variation (passes through the origin) is if C=0.

Graph of direct variation

- The graph must be a line that passes through the origin.

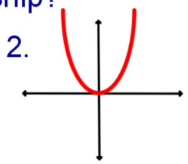
Does each graph represent a Direct Variation relationship?

1.



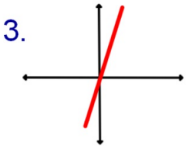
No, it doesn't pass through the origin.

2.



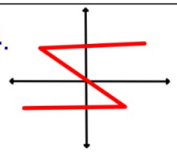
No,
this isn't a line

3.



Yes

4.



No, this isn't a line.
In fact, it's not even a function.