

# U6D3\_T Graphing Using Intercepts

Friday, April 20, 2018 8:09 AM



U6D3\_T  
Graphing ...

U6D3

## Warm Up:

Are the following equations in standard form?  
If not, make the corrections so it is in standard form.

a)  $3y - 2x + 4 = 0$

$$-2x + 3y + 4 = 0$$

$$2x - 3y - 4 = 0$$

b)  $0 = x - 7$

$$x - 7 = 0$$

c)  $\frac{2}{3}x + \frac{1}{4}y = 7$

LCM 12

$$\frac{12}{3}(2x) + \frac{12}{4}(1y) = \frac{12}{1}(7)$$

$$4(2x) + 3y = 84$$

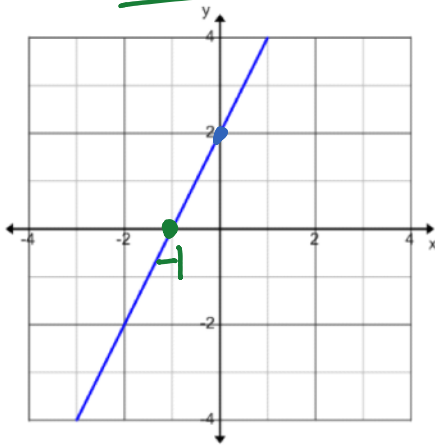
$$8x + 3y - 84 = 0$$

# QUIZ: MONDAY

## Graphing a Line Using Intercepts (6.3)

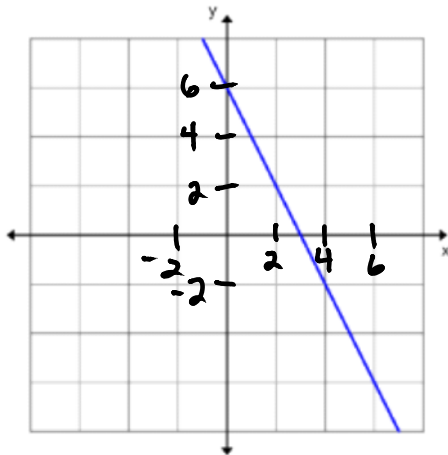
**What are intercepts?** The points where a graph crosses (or intersects with) the x-axis and the y-axis.

**Example 1:** Use the graphs below to determine the x & y intercepts.



x-intercept  
 $x = -1$  OR  $(-1, 0)$

y-intercept  
 $y = 2$  OR  $(0, 2)$



x-int  
 $x = 3$  or  $(3, 0)$

y-int  
 $y = 6$  or  $(0, 6)$

**In General :**

- the x-intercept is the value of x where the line crosses the x-axis (i.e.,  $y=0$ )
- the y-intercept is the value of y where the line crosses the y-axis (i.e.,  $x=0$ )

**Example 2:** For each line determine the intercepts and then graph the line.

a.  $2x - 4y = 8$

x-intercept (set  $y=0$ )

$$2x - 4(0) = 8$$

$$2x - 0 = 8$$

$$2x = 8$$

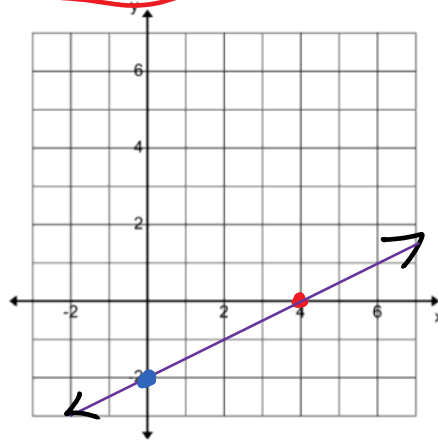
$$x = 4 \quad (4, 0)$$

y-int. (set  $x=0$ )

$$-4y = 8$$

$$y = -2$$

"Thumb Method" cover the 'y-term' with thumb.



b.  $3x + 2y - 12 = 0$

x-int

$$3x - 12 = 0$$

$$3x = 12$$

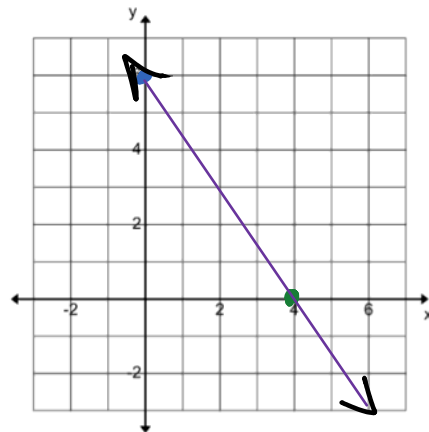
$$x = 4$$

y-int

$$2y - 12 = 0$$

$$2y = 12$$

$$y = 6$$



**Example 3:** The graph below illustrates the value of a car from the time it was bought.

a. Identify the V intercept and explain its meaning.

V-int. is 20000

meaning

The cars value was \$20000 new.

b. Identify the T intercept and explain its meaning.

T-int. is 20

meaning

After 20 years, the value of the car is \$0.

c. What is the slope and it's meaning?

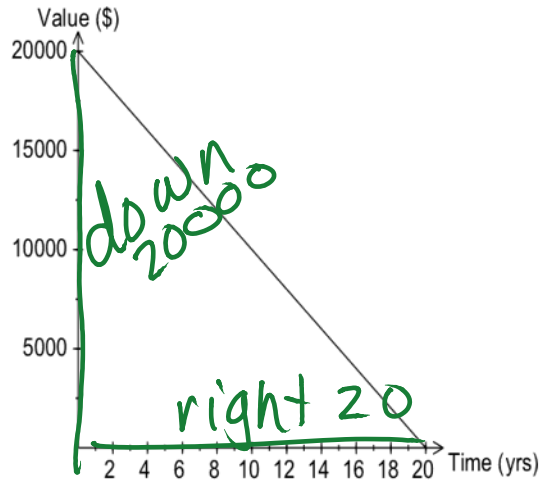
$$m = \frac{-20000}{20}$$

$$m = -1000$$

meaning

The cars value decreases by \$1000 every year.

(The value 'depreciates' at \$1000/yr)



**Example 4:**

Determine the slope of each line given the intercepts.

Then, write the equation of the line.

a) x intercept is 3 and y intercept is 12  $b = 12$

$$y = mx + b$$

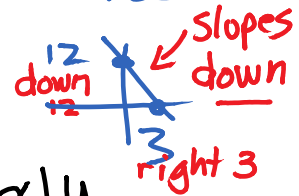
$$m = -\frac{12}{3}$$

$$m = -4$$

$$y = -4x + 12$$

x	y
3	0
0	12

-3 < 0 | 12



b) x intercept is 5 and y intercept is -2

$$m = \frac{2}{5}$$

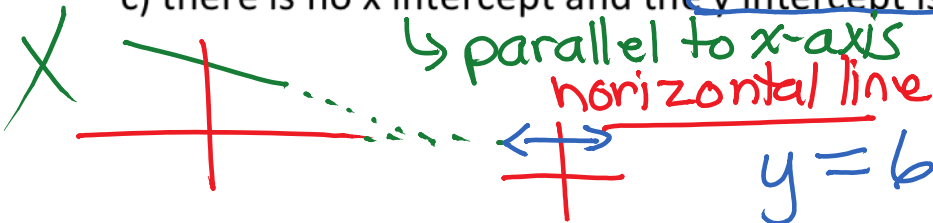
$b \uparrow$



$$\therefore y = \frac{2}{5}x - 2$$

c) there is no x intercept and the y intercept is 6

↳ parallel to x-axis  
horizontal line



$$y = 6$$

d) x intercept is -4 and there is no y intercept.

vertical line, cuts through x-axis.

$$x = -4$$

