

Write the equation of the line in point slope form

1. contains the points (3,4) and (21,-15)

$$m = \frac{-15-4}{21-3} = \frac{-19}{18}$$

$$y-4 = \frac{-19}{18}(x-3)$$

or

$$y+15 = \frac{-19}{18}(x-21)$$

2. y-intercept = 4 and contains the point (14,27)

$$(0,4) \quad m = \frac{27-4}{14-0} = \frac{23}{14}$$

$$y-4 = \frac{23}{14}x$$

or

$$y-27 = \frac{23}{14}(x-14)$$

Write the equation of the line in slope intercept form

3. contains the points (-21,10) and (13,-7)

$$m = \frac{-7-10}{13-(-21)} = \frac{-17}{34} = -\frac{1}{2}$$

$$y = -\frac{1}{2}x + b$$

$$10 = -\frac{1}{2}(-21) + b$$

$$10 = \frac{21}{2} + b$$

$$\frac{10}{2} - \frac{21}{2} = b$$

$$-\frac{1}{2} = b$$

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

4. slope = -5 and contains the point (-12,20)

$$m = -5 \quad y = -5x + b$$

$$20 = -5(-12) + b$$

$$20 = 60 + b$$

$$\frac{-60}{-60} \quad \frac{-60}{-60}$$

$$-40 = b$$

$$y = -5x - 40$$

Write the equation of the line in slope intercept that is parallel to $y = 3x + 5$ and contains the point (12,-18)

$$5. \quad m = 3$$

$$y = 3x + b$$

$$-18 = 3(12) + b$$

$$-18 = 36 + b$$

$$\frac{-36}{-36} \quad \frac{-36}{-36}$$

$$-54 = b$$

$$y = 3x - 54$$

Write the equation of the line in slope intercept that is perpendicular to $y = 3x + 5$ and contains (-12,21)

$$6. \quad m = -\frac{1}{3}$$

$$y = -\frac{1}{3}x + b$$

$$21 = -\frac{1}{3}(-12) + b$$

$$21 = 4 + b$$

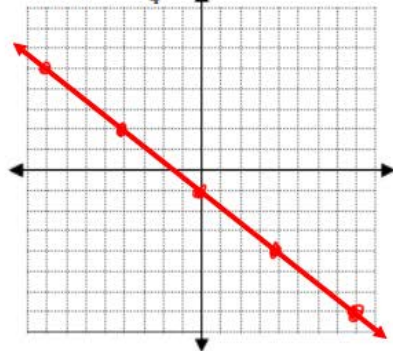
$$\frac{-4}{-4} \quad \frac{-4}{-4}$$

$$17 = b$$

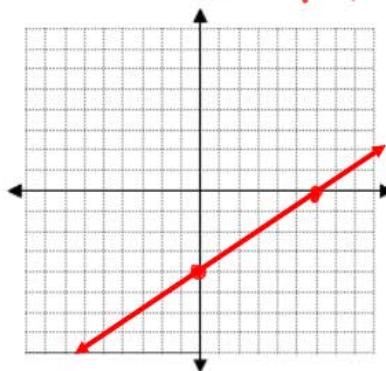
$$y = -\frac{1}{3}x + 17$$

Graph the following

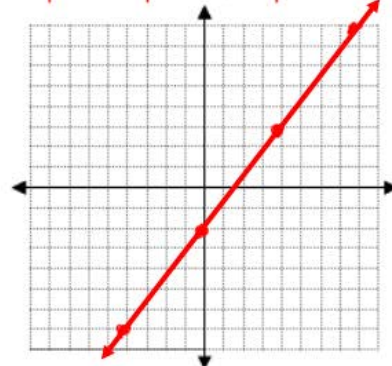
$$7. f(x) = -\frac{3}{4}x - 1$$



$$8. 2x - 3y = 12 \quad x = 6 \quad y = -4$$



$$9. \frac{4y}{4} = \frac{5x-8}{4} \quad y = \frac{5}{4}x - 2$$



Enter the data in your calculator and create a scatterplot with a "friendly" window.

10. Every musical note has an associated frequency measured in hertz(Hz), or vibrations per second. The table shows the approximate frequencies of the notes in the octave from middle C up to the next C on a piano.

Note Name	C	C#	D	D#	E	F	F#	G	G#	A	A#	B	Next C
# above C	0	1	2	3	4	5	6	7	8	9	10	11	12
Frequency(Hz)	262	277	294	311	330	349	370	392	415	440	466	494	523

WINDOW

xmin=0 ymin=0
 xmax=15 ymax=700
 xscl=1 yscl=100

- a. Find a model that fits the data. (linear quadratic, exponential, abs. value, etc..) *is better than linear*
- b. Use regression and write the equation of your model. $y = 0.626x^2 + 14.132x + 262.6$
- c. Use the model to predict note 24. 962.28 Hz
- d. Find the note with a frequency of 600 Hz. Hint graph $y = 600$. This makes a straight line at 600. The point of intersection is your solution!!!
 14.527 above C

11. Bob decides to find out how much soap a person uses in a day. Below is the data that he collected.

# of days used	0	1	4	5	6	7	8	9	11	12	17	19	20	21	22
Weight(grams)	124	121	103	96	90	84	78	71	58	50	27	16	12	8	6

WINDOW

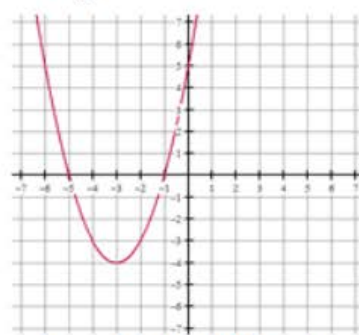
xmin=0 ymin=0
 xmax=22 ymax=130
 xscl=2 yscl=10

- a. Find a model that fits the data. (linear linear, quadratic, exponential, absolute value, etc..) *uses a constant amount each day*
- b. Use regression and write the equation of your model. Round to nearest thousandth.
 $y = -5.575x + 123.141$
- c. Use the model to predict when the soap will be gone.
 $0 = -5.575x + 123.141$ $x = 22.089 \text{ days}$
- d. Use the model to predict the weight after 14.2 days.
 $y = -5.575(14.2) + 123.141$
 43.979 grams

Review Skillz

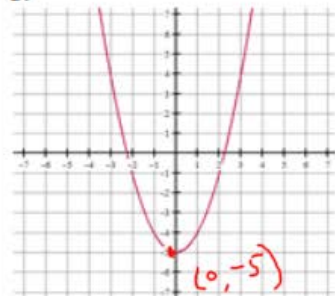
Write the equation of the quadratic function in vertex form, $y = a(x - h)^2 + k$. See example for a refresher!

Example:



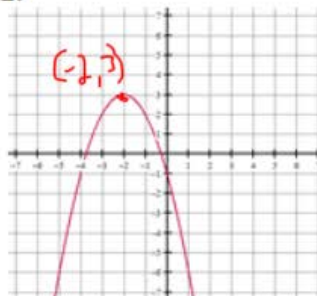
$$y = (x + 3)^2 - 4$$

1.



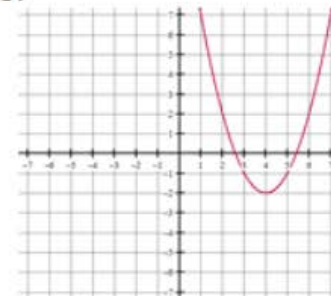
$$y = x^2 - 5$$

2.



$$y = (x + 2)^2 + 3$$

3.



$$y = (x - 4)^2 - 2$$