

Write the equation of the line in point slope form

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

Point	Slope	point-slope
(3,4)	$m = \frac{\Delta y}{\Delta x}$ $= \frac{(4) - (-15)}{(3) - (21)}$ $= \frac{19}{-18}$	$y - y_1 = m(x - x_1)$ $y - (4) = \frac{19}{-18}(x - (3))$

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

Point	Slope	point-slope
(0,4)	$m = \frac{\Delta y}{\Delta x}$ $= \frac{(27) - (4)}{(14) - (0)}$ $= \frac{23}{14}$	$y - y_1 = m(x - x_1)$ $y - (4) = \frac{23}{14}(x - (0))$

Write the equation of the line in slope intercept form

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

Point	Slope	point-slope
(-21,10)	$m = \frac{\Delta y}{\Delta x}$ $= \frac{(10) - (-7)}{(-21) - (13)}$ $= \frac{17}{-34}$ $m = -\frac{1}{2}$	$y - y_1 = m(x - x_1)$ $y - (10) = -\frac{1}{2}(x - (-21))$ $y - 10 = -\frac{1}{2}x - \frac{21}{2}$ $y = -\frac{1}{2}x - \frac{21}{2} + \frac{20}{2}$ $y = -\frac{1}{2}x - \frac{1}{2}$

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

point-slope

$$y - y_1 = m(x - x_1)$$

$$y - (20) = -5(x - (-12))$$

$$y - 20 = -5x - 60$$

$$y = -5x - 40$$

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

5.

Point	Slope	Point-Slope
(12,-18)	$m = 3$ $1/m = 3$	$y - y_1 = m(x - x_1)$ $y - (-18) = 3(x - (12))$ $y + 18 = 3x - 36$ $y = 3x - 54$

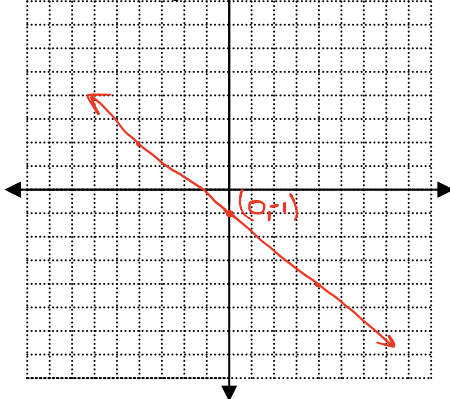
Write the equation of the line in slope intercept that is perpendicular to $y = 3x + 5$ and contains (-12,21)

6.

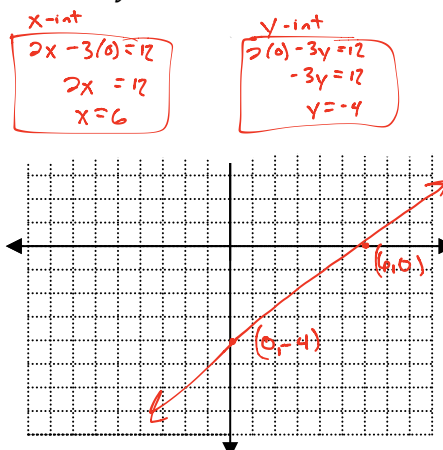
Point	Slope	point-slope
(-12,21)	$m = 3$ $\perp m = -\frac{1}{3}$	$y - y_1 = m(x - x_1)$ $y - (21) = -\frac{1}{3}(x - (-12))$ $y - 21 = -\frac{1}{3}x - 4$ $y = -\frac{1}{3}x + 17$

Graph the following

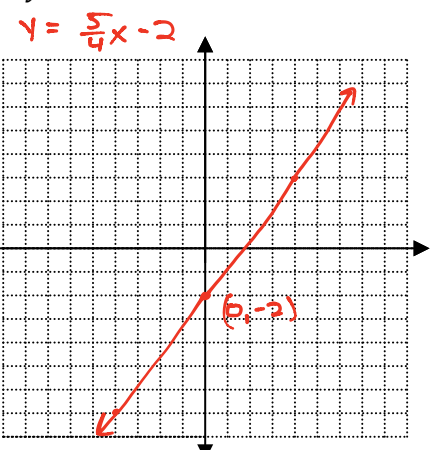
7. $f(x) = -\frac{3}{4}x - 1$



8. $2x - 3y = 12$



9. $4y = 5x - 8$



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= -5 ymn= 225
 xmax= 20 ymax= 600
 xscl= 1 yscl= 25

a. Find a model that fits the data (linear, quadratic, exponential, abs. value, etc..).

b. Use regression and write the equation of your model. Round to nearest thousandth.

$$y = 0.626x^2 + 14.132x + 262.604$$

c. Use the model to predict note 24. **962.285 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!!!

NOTE 14.527

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= -5 ymn= 0
 xmax= 25 ymax= 150
 xscl= 1 yscl= 25

a. Find a model that fits the data (linear, quadratic, exponential, absolute value, etc..).

e. Use regression and write the equation of your model. Round to nearest thousandth.

$$y = -5.575x + 123.141$$

b. Use the model to predict when the soap will be gone.

Day 22.089

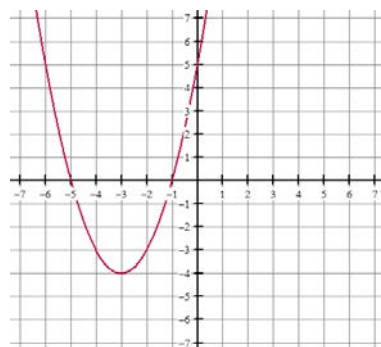
c. Use the model to predict the weight after 14.2 days.

43.979 grams

Review Skill

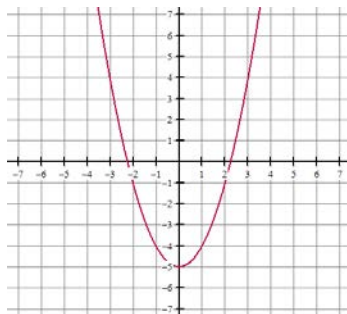
Write the equation of the quadratic function in vertex form, $y = a(x - h)^2 + k$. See example for a refresher!

Example:



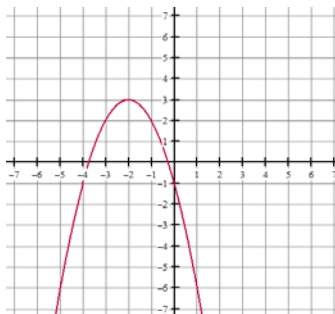
$$y = (x + 3)^2 - 4$$

1.



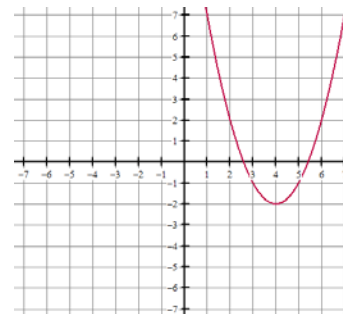
$$y = x^2 - 5$$

2.



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

3.



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