Review:

Friday, December 06, 2013
9:31 AM

For $A = \{0, 1, 2\}$ and $B = \{1, 2, 3\}$, find:

a) $A \cap N = \{1, 2\}$

b) $A \cup B = \{0, 1, 2, 3\}$

c) $B \cap I = \emptyset = \{\}$

$N = \{1, 2, 3, \ldots\}$
I = irrationals
$Z = \{\ldots -3, -2, -1, 0, 1, 2, 3 \ldots\}$

For the same sets as above, answer T for true and F for false. $A = \{0, 1, 2\}$ and $B = \{1, 2, 3\}$

a) $A \subseteq N$ F because 0 is not in N

b) $B \subseteq N$ T

c) $\emptyset \subseteq A$ T because $\emptyset$ is a subset for all sets

d) $Q \cup I = R$ T

e) $-2 \subseteq R$ F

↑ not a set

$\subseteq$ is subset

$\{2, 3\} \subseteq \{2, 3, 4\}$

so $\{-2\} \subseteq R$ } true
$-2 \in R$ }

Find the equation of the line which runs through the points ①$(-6, 1)$ and ②$(3, -2)$. Give your answer in both slope-intercept form, and also in standard form with integral coefficients.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-2-1}{3-(-6)} = \frac{-3}{9} = -\frac{1}{3}$$

method #1: use $y = mx+b$ (slope-intercept)

pick a point: $(3, -2)$

$$y = mx + b$$
$$-2 = -\frac{1}{3}(3) + b$$
$$-2 = -1 + b$$
$$b = -1$$

so $y = mx + b$

$$\boxed{y = -\frac{1}{3}x - 1}$$

standard form: $3(y) = \left(-\frac{1}{3}x - 1\right)3$

$$3y = -x - 3$$

$$\boxed{x + 3y = -3}$$

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method #2: use point-slope $(3, -2)$

$$y - y_1 = m(x - x_1)$$
$$y - (-2) = -\tfrac{1}{3}(x - 3)$$

$y + 2 = -\frac{1}{3}x + 1$

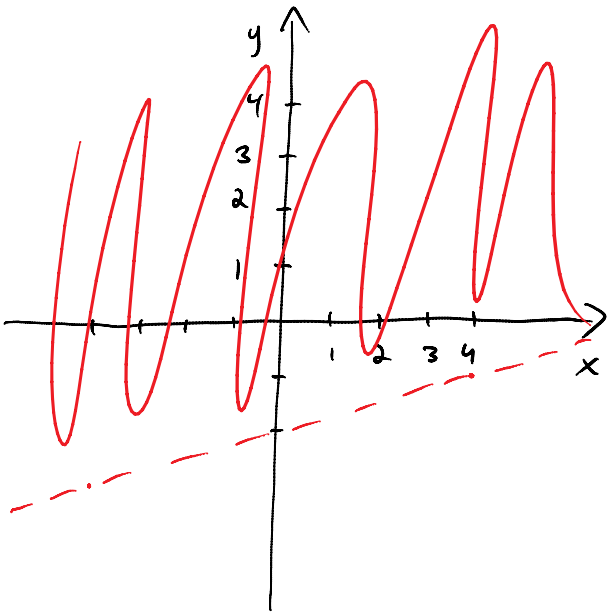
$\boxed{y = -\frac{1}{3}x - 1}$

and then find standard form as before

Graph $x - 4y < 8$

$-4y < -x + 8$

$y > \frac{1}{4}x - 2$



shading: (0,0)

$0 - 0 < 8$ ✓

Cashews sell for $\$1.20$ per pound and Brazil nuts sell for $\$1.50$ per pound. How many pounds of cashews should be mixed with 20 lbs of Brazil nuts to get a mix that sells for $\$1.30$ per pound?

	Cost	=	cost/lb	·	# lbs
cashews	$1.2x$		1.20		x
	+				
Brazil nuts	$1.5(20)$		1.50		20
	=				
mix	$1.3(x+20)$		1.30		$x+20$

mix	$1.3\overline{(x+20)}$	1.30	$x+20$

$$10\left[1.2x + 1.5(20)\right] = \left[1.3(x+20)\right]\cdot 10$$

$$12x + 15(20) = 13(x+20)$$

$$12x + 300 = 13x + 260$$

$$40 = x$$

You need 40 lbs of cashews