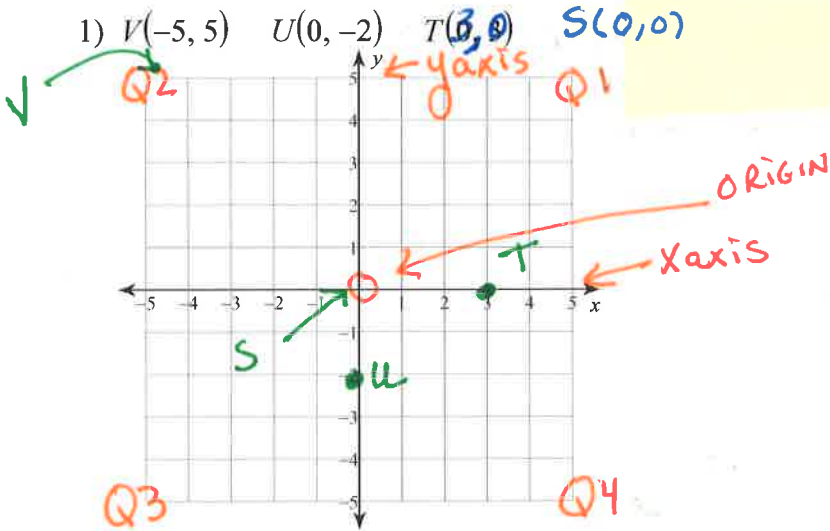


CHAPTER 2 REVIEW

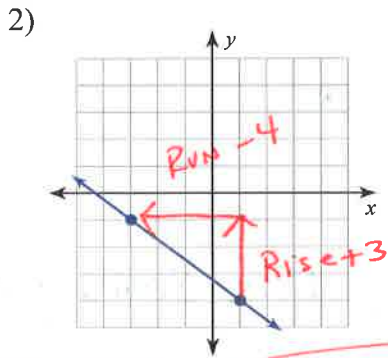
INSTRUCTIONS: Clearly show work Circle final answers.
TBD points unless otherwise specified.

Plot the points and label points T, U, V.
State the quadrant or axis that each point lies in.

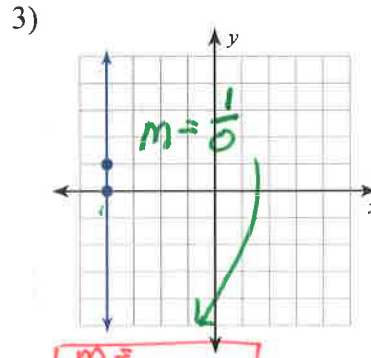
V Q2 ; U Yaxis ; T Xaxis ; S origin



Find the slope of each line (4pts each) $M = \frac{\text{Rise}}{\text{Run}}$



$M = -\frac{3}{4}$ OR $M = \frac{-3}{4}$ OR $M = \frac{3}{-4}$



$M = \text{Undefined}$

HLINE $\rightarrow M = 0$
VLINE $\rightarrow M = \text{UNDEFINED}$
 $+m$ $-m$

Find the slope of the line through each pair of points. (4pts each)

$M = \frac{\Delta Y}{\Delta X}$

4) $(0, 5), (0, -3)$

$M = \text{undefined}$
 $M = \frac{\Delta Y}{\Delta X} = \frac{5 - (-3)}{0 - 0} = \frac{8}{0}$

5) $(-2, -20), (-12, 15)$

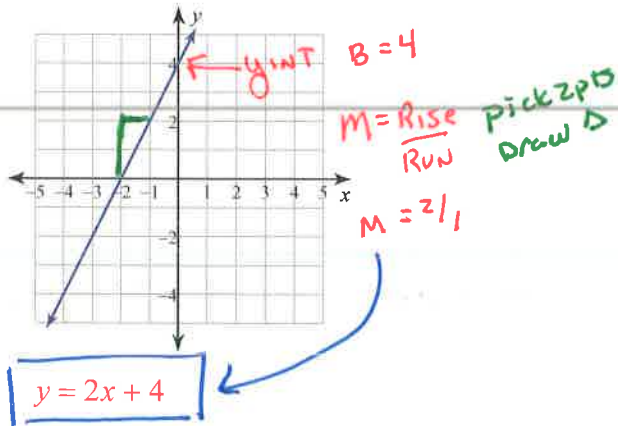
write slope as a reduced improper fraction.

$M = \frac{-20 - 15}{-2 - (-12)} = \frac{-35}{10}$ reduce

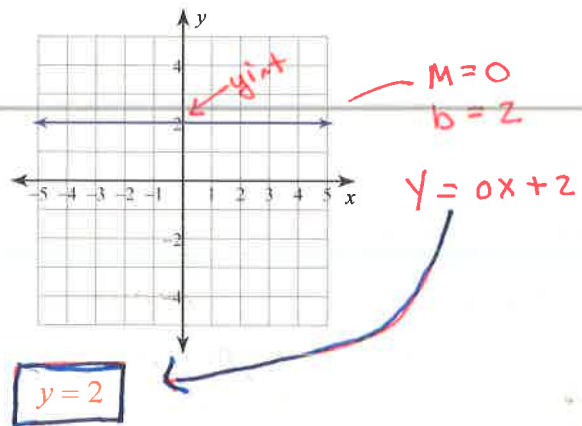
$M = -\frac{7}{2}$

Write the slope-intercept form of the equation of each line.

6)



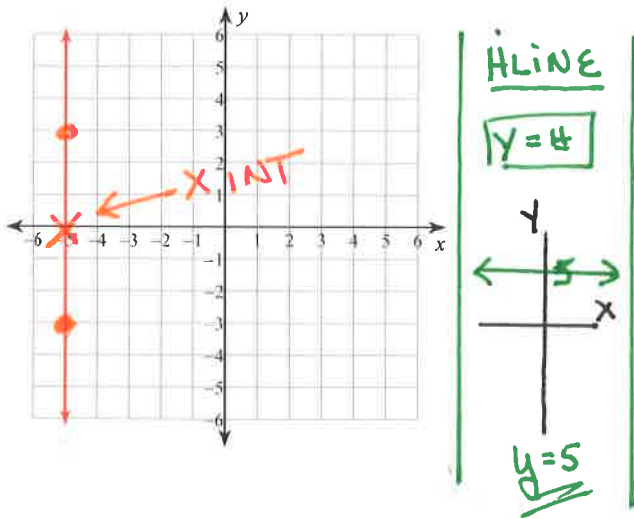
7)



Sketch the graph of each line using slope and intercept. Clearly mark 3 points.

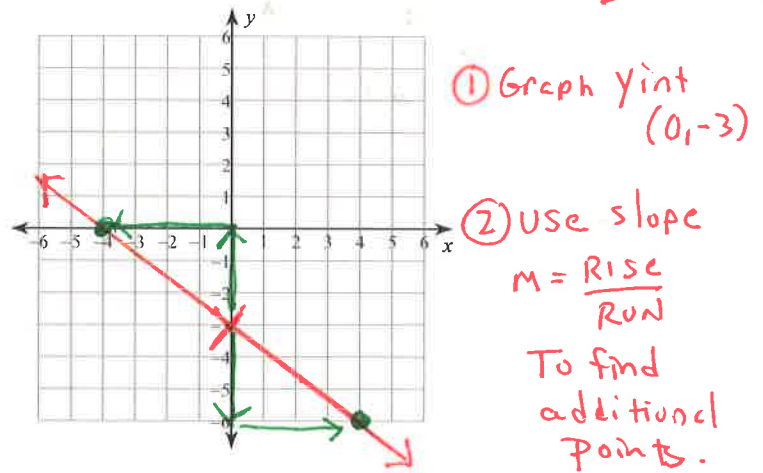
8) $x = -5$

$x = -5$ is a V-LINE



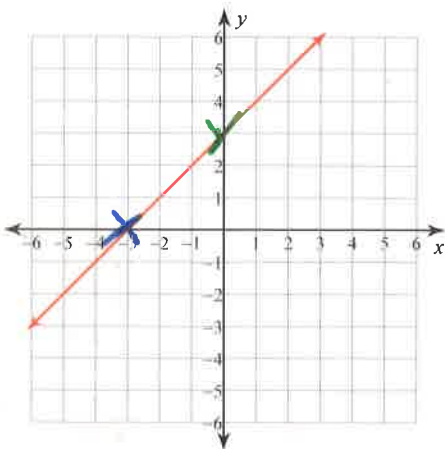
9) $y = -\frac{3}{4}x - 3$

$M = -\frac{3}{4}$
 $b = -3$



Sketch the graph of each line using intercepts. Label the x-intercept (X) and y-intercept (Y)

10) $x - y = -3$



FIND X-INTERCEPT

$$x - 0 = -3$$

$$x = -3$$

$$(-3, 0)$$

FIND Y-INTERCEPT

$$0 - y = -3$$

$$y = 3$$

$$(0, 3)$$

Remember ⁻²⁻ Cover Method!

P/S $y - y_1 = m(x - x_1)$

Write the point-slope form of the equation to describe the following lines.

11) through: $(-5, 4)$, slope = $\frac{3}{4}$
 $y - 4 = \frac{3}{4}(x - (-5))$
 $y - 4 = \frac{3}{4}(x + 5)$

12) through: $(-4, 4)$ & $(-2, 5)$; use the 1st point

$y - 4 = \frac{1}{2}(x + 4)$
 $m = \frac{4 - 5}{-4 - (-2)} = \frac{-1}{-2} = \frac{1}{2}$
 $m = \frac{1}{2}$

S/I: $y = mx + b$

Write the slope-intercept form of the equation to describe the following lines.

13) Slope = $\frac{1}{2}$, y-intercept = $-\frac{4}{3}$
 $y = \frac{1}{2}x - \frac{4}{3}$

14) through: $(0, -1)$ and $(-1, 5)$
 $y = -6x - 1$
 $m = \frac{-1 - 5}{0 - (-1)} = \frac{-6}{1} = -6$
 $m = -6$

Same answer
 P/S WITH PT $(-1, 5)$:
 $y - 5 = -6(x + 1)$
 $y - 5 = -6x - 6$
 $+5$ $+5$
 $y = -6x - 1$

15) through: $(-1, 1)$ and $(1, -2)$

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

② P/S $y - 1 = -\frac{3}{2}(x + 1)$

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

16) $-4x + 3y = 30$
 $+4x$ $+4x$
 $3y = 4x + 30$
 $\frac{3y}{3} = \frac{4x + 30}{3}$
 $y = \frac{4}{3}x + 10$

Evaluate each function.

17) $f(x) = x^2 + 10$; Find

* a) $f(-4) = (-4)^2 + 10 = 16 + 10 = 26$
 b) $f(0) = 0^2 + 10 = 10$
 c) $f(10) = (10)^2 + 10 = 100 + 10 = 110$

* for $f(-4)$ substitute $x = -4$ and evaluate the expression.

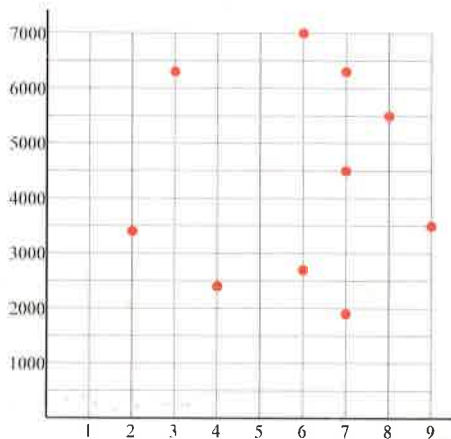
Construct a scatter plot.

A) State if there appears to be a positive correlation, negative correlation, or no correlation.

B) Identify if the relationship is linear, or non-linear.

18)

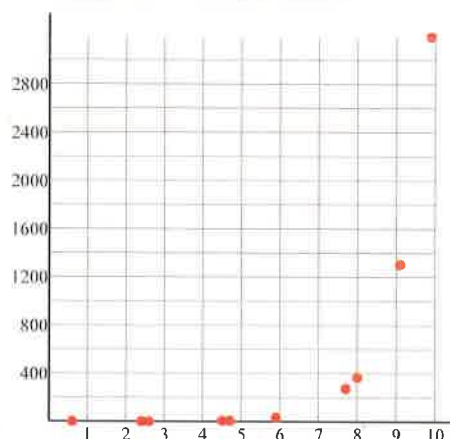
X	Y	X	Y
2	3,400	7	1,900
3	6,300	7	4,500
4	2,400	7	6,300
6	2,700	8	5,500
6	7,000	9	3,500



* NO CORRELATION AND NO ASSOCIATION LINEAR OR NONLINEAR.

19)

X	Y	X	Y
0.6	0.09	5.9	34.38
2.4	0.62	7.7	276.41
2.6	0.77	8	369.07
4.5	7.32	9.1	1,305.14
4.7	8.69	9.9	3,193.3



* NO LINEAR CORRELATION * NON LINEAR ASSOCIATION

Fit the Best Fit Line

a) (2pts) Construct a scatter plot.

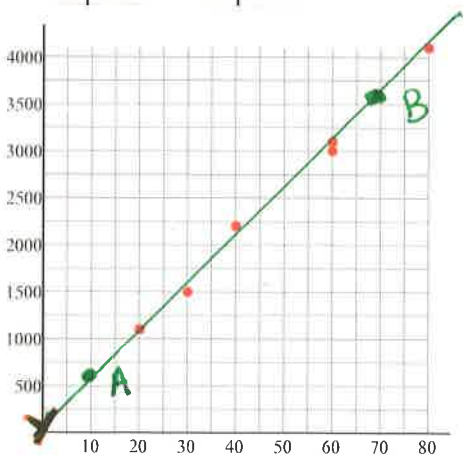
b) (2pts) State if there is a positive, negative, or no correlation.

c) (4pts) Use Tlcalc to find the equation of the line that best fits the data (round 2 decimals)

d) (6pts) Plot the Best Fit Line on the scatterplot: label the y-intercept with a Y; label 2 additional points with their letters and ordered pairs - point A:(10, _) and point B:(70, _)

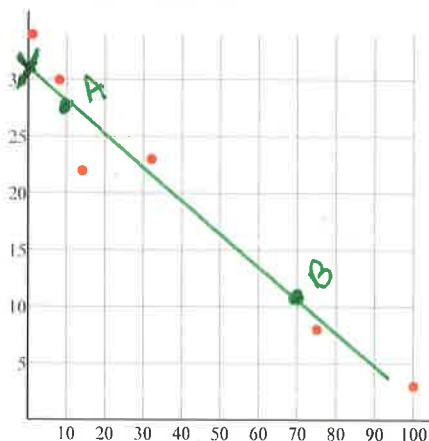
20)

X	Y	X	Y
20	1,100	60	3,000
30	1,500	60	3,100
40	2,200	80	4,100



21)

X	Y	X	Y	X	Y
1	34	14	22	75	8
8	30	32	23	100	3



Negative correlation

$$y = -.29x + 31.28$$

A: (10, 28.38)
B: (70, 10.98)

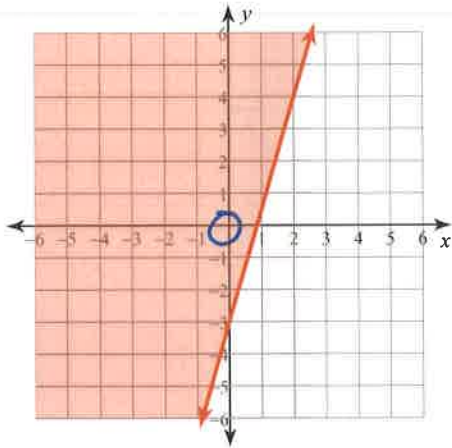
b) Positive correlation
 $y = 49.93x + 86.58$

A (10, 585.88)
B (70, 3581.7)

Sketch the graph of each linear inequality.

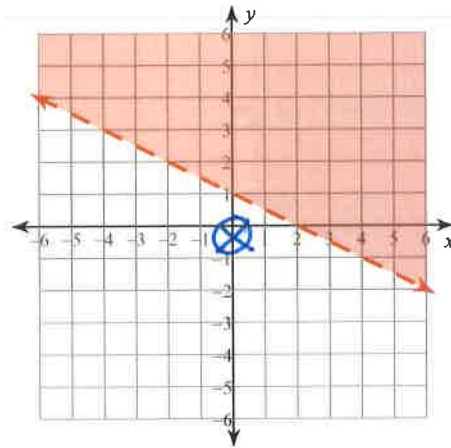
22) $y \geq \frac{7}{2}x - 3$

$T(0,0)$
 $0 \geq -3$ T

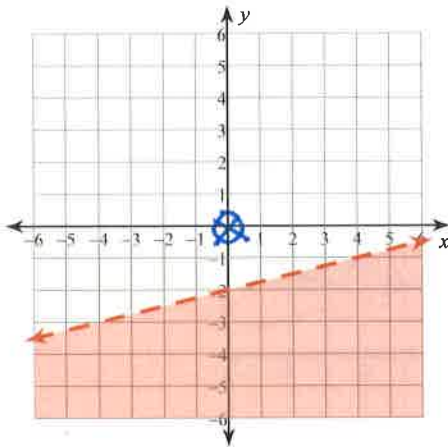


23) $y > -\frac{1}{2}x + 1$

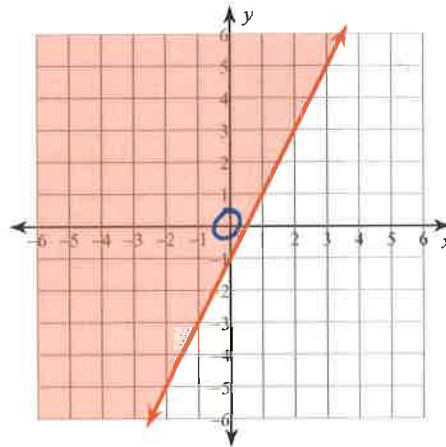
$T(0,0)$ $0 > 1$ F



24) $x - 4y > 8$



25) $2x - y \leq 1$



$$\begin{aligned} x - 4y &> 8 \\ -x - 4y &> 8 - x \\ * \quad \frac{-4y}{-4} &> \frac{-x + 8}{-4} \\ y &< \frac{1}{4}x - 2 \end{aligned}$$

$T(0,0)$
 $0 < -2$ F

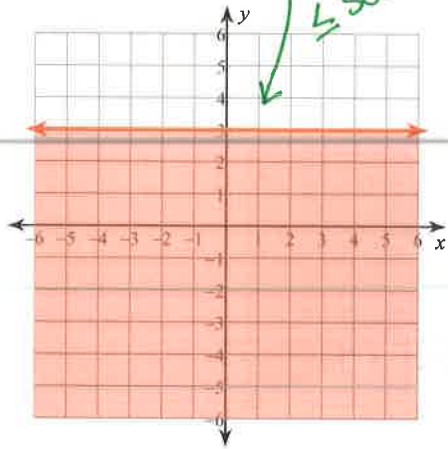
PUT IN
 $y = mx + b$
ISOLATE Y

When you divide the variable by a negative number we reverse the symbol

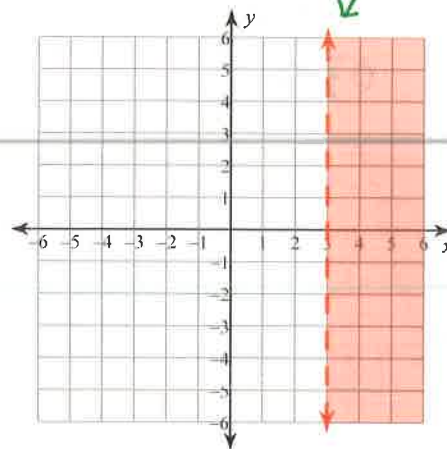
$$\begin{aligned} 2x - y &\leq 1 \\ -2x - y &\leq 1 - 2x \\ * \quad \frac{-y}{-1} &\leq \frac{-2x + 1}{-1} \\ y &\geq 2x - 1 \end{aligned}$$

$T(0,0)$
 $0 \geq -1$ T

26) $y \leq 3$



27) $x > 3$

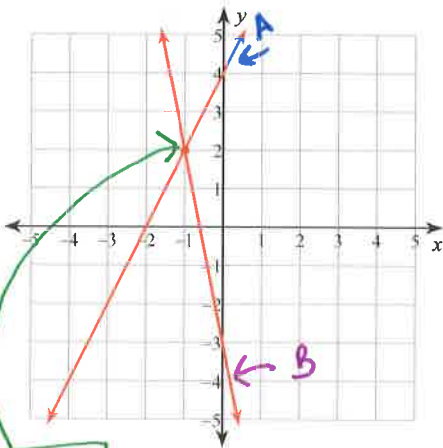


BONUS: Solve each system by graphing.

a) Plot the 2 lines and find ordered pair where the 2 lines intersect

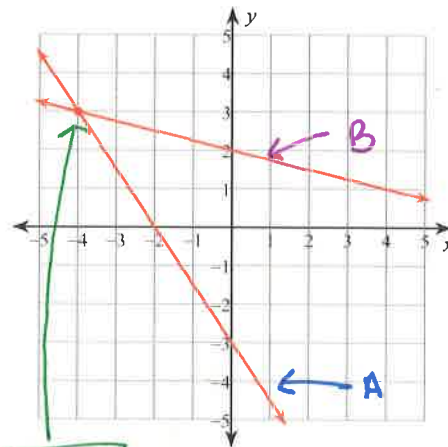
b) Then check the ordered pair checks in BOTH equations

28) A $y = 2x + 4$
 B $y = -5x - 3$



$(-1, 2)$

29) A $y = -\frac{3}{2}x - 3$
 B $y = -\frac{1}{4}x + 2$



$(-4, 3)$

Checks

Line A: $2 = 2(-1) + 4$
 $2 = 2 \checkmark$

LINE B $2 = -5(-1) - 3$
 $2 = 2 \checkmark$

LINE A: $3 = -\frac{3}{2}(-4) - 3$
 $3 = 3 \checkmark$

LINE B $3 = -\frac{1}{4}(-4) + 2$
 $3 = 3 \checkmark$