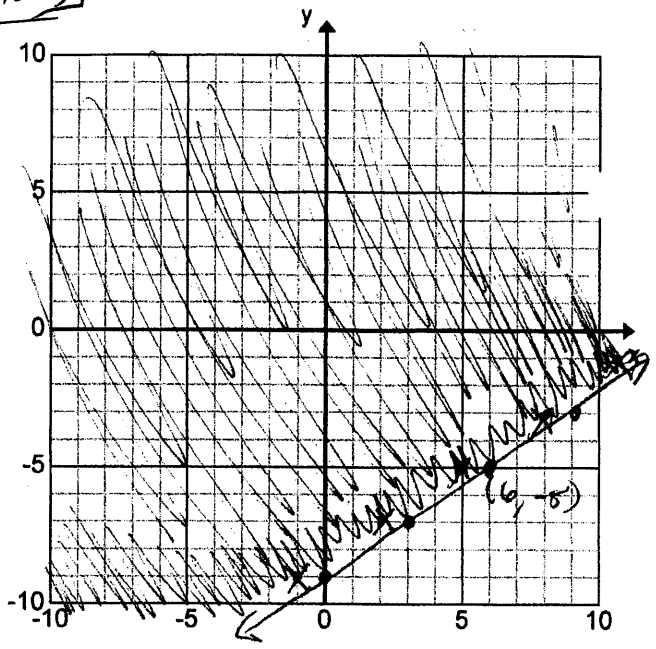
Alg 1-2 **6-5 to 6-6 Review Solutions**

1) Graph $y+5 \geq \frac{2}{3}(x-6)$

$m = \frac{2}{3}$ point $= (6, -5)$



Test (0,0): $0+5 \geq \frac{2}{3}(0-6)$

$5 \geq \frac{2}{3}(-6)$

$5 \geq -4$

True

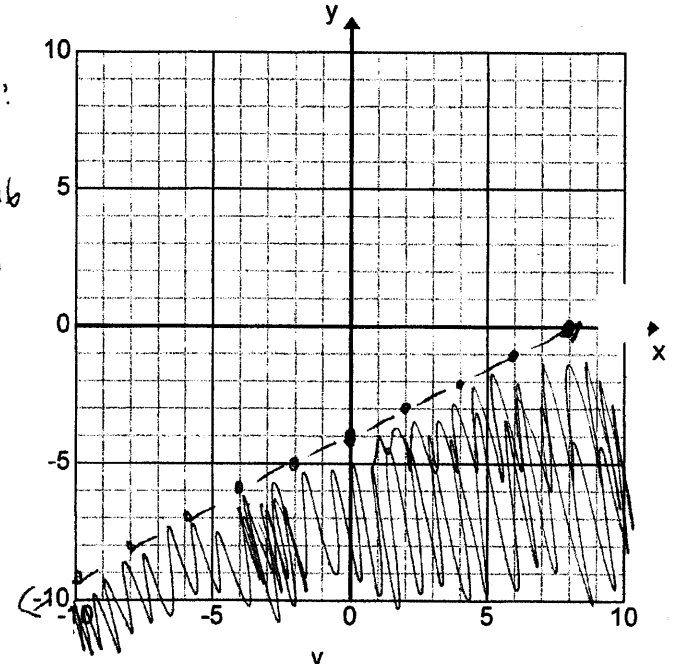
2) Graph $2x-4y>16$

Way 1:

$2x-4(0) \geq 16$ $\quad 2(0)-4y=16$

$\frac{2x}{2} \geq \frac{16}{2}$ $\quad \frac{-4y}{-4} = \frac{16}{-4}$

$x = (8, 0)$ $\quad y = (0, -4)$



Test (0,0):

$2(0)-4(0) > 16$

$0 > 16$

False!

Way 2:

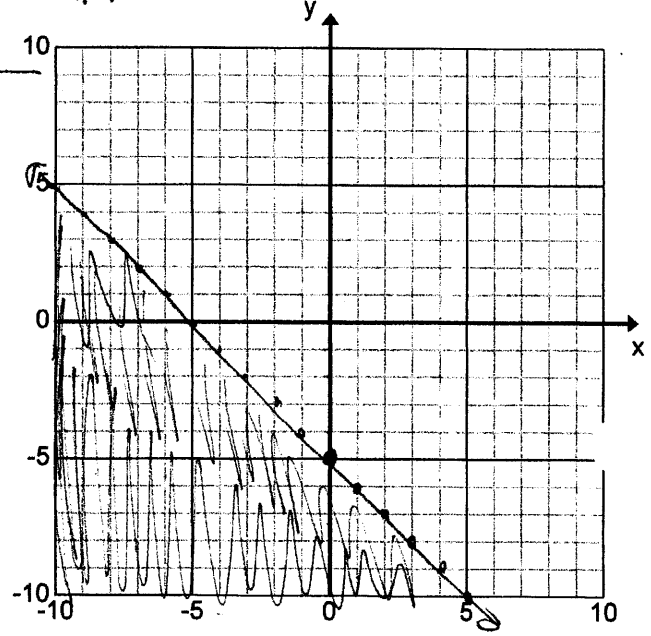
$2x-4y>16$

$-2x \quad -2x$

$\frac{-4y}{-4} > \frac{-2x}{-4} + \frac{16}{-4}$

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

3) Graph $y \leq -x-5$



Test (0,0): $0 \leq -(0)-5$

$0 \leq -5$ False

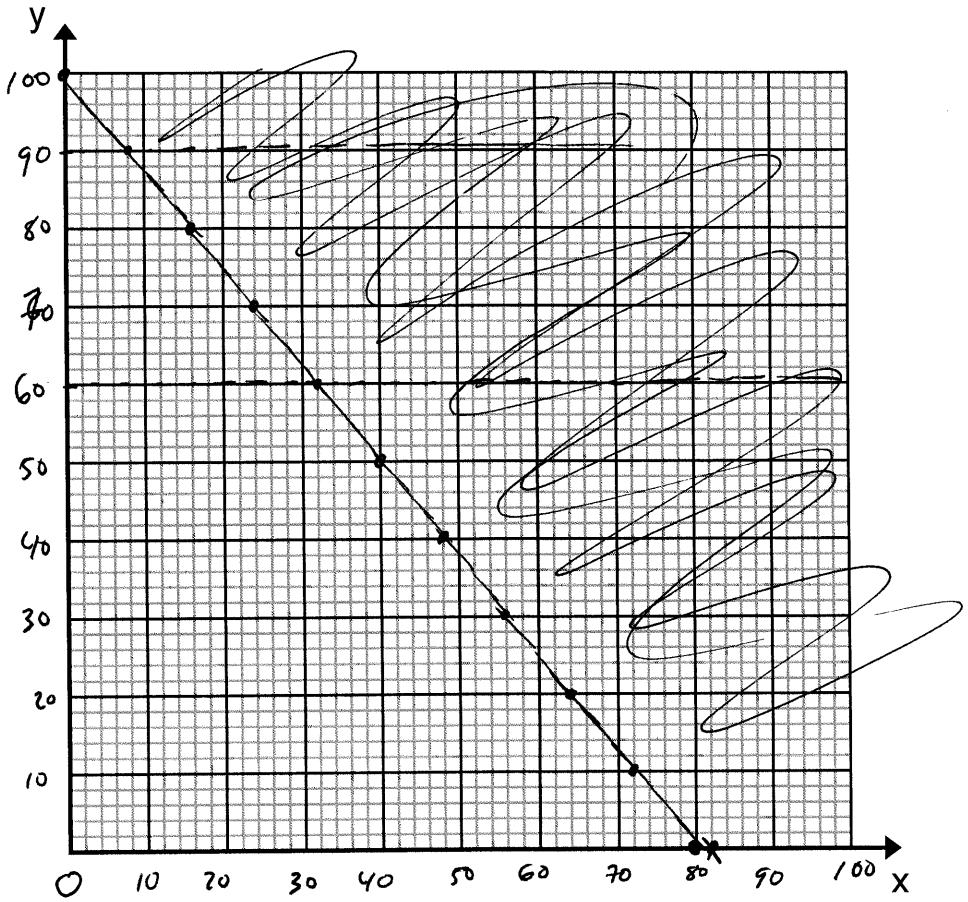
4) A GHS student with two summer jobs earns $10 per hour at a café in downtown Laconia. She also earns $8 per hour at Shaw's. The student would like to earn at least $800 per month.

a. Write an inequality to describe this situation. Define your variables.

$10x + 8y \geq 800$

x = # hours @ café
y = # hours @ Shaw's

b. Graph the inequality.



$10x + 8y \geq 800$
$-10x \quad -10x$

$\frac{8y}{8} \geq \frac{-10x}{8} + \frac{800}{8}$

$y \geq -\frac{5}{4}x + 100$

c. Give three combinations of hours the student could work to earn $800.

Any combination of points on the line.

100 shaws, 0 café
90 " , 8 "
80 " , 16 "
70 " , 24 "
60 " , 32 "
50 " , 40 "
40 " , 48 "
30 " , 56 "
20 " , 64 "
10 " , 72 "
0 " , 8 "

d. The student can work at Shaw's 60 h per month and at most 90 h per month. Can the student earn at least $800? Explain.

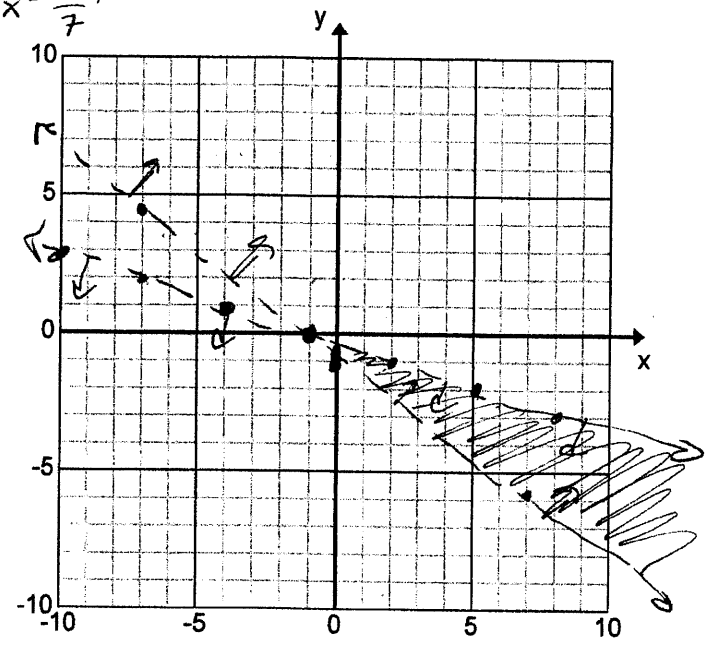
Yes, there are combinations of work that the student works between 60 and 90 hours → 90 and 8, 80 and 16, 70 and 24, 60 and 32.

$5x+7y>-6$

$-5x \quad -5x$

$\frac{7y}{7} > \frac{-5x}{7} - \frac{6}{7}$

5) Graph $\begin{cases} 5x+7y>-6 \\ x+3y<-1 \end{cases}$ and list 2 solutions $y > -\frac{5}{7}x - \frac{6}{7}$



$3y < -x - 1$

$\frac{3y}{3} < \frac{-x}{3} - \frac{1}{3}$

$y < -\frac{1}{3}x - \frac{1}{3}$

$m = -\frac{1}{3}$

Also ... $x + 3(0) = -1$

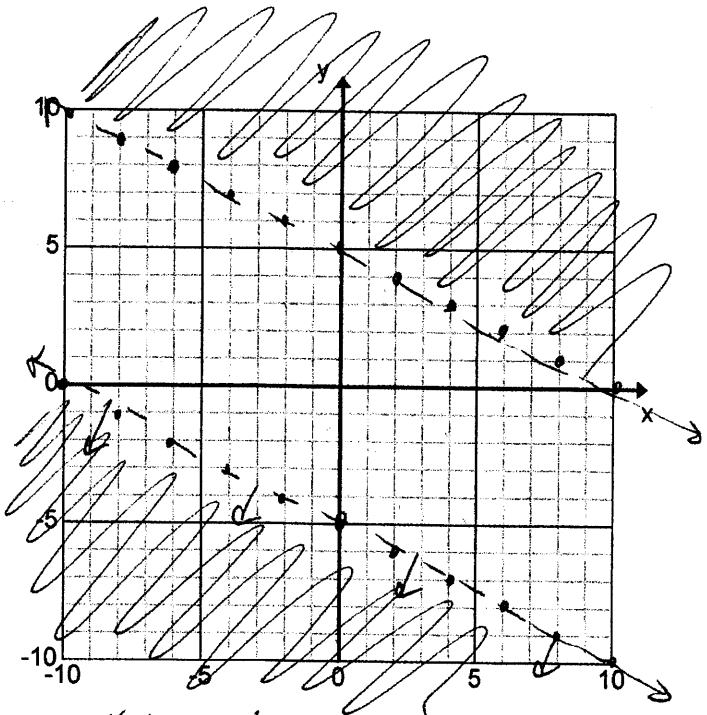
$x = (-1, 0) \rightarrow$ x-int

2 Solutions: $(5, -3)$

$(7, -4)$

6) $y < -\frac{1}{2}x - 5$

$y - 8 > -\frac{1}{2}(x+6)$



$(-6, 8)$

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

2 Solutions:

None → the lines are parallel and their shadings never intersect.

7) Graph $\begin{cases} x+4y-2\geq 0 \\ 2x-y+1>2 \\ x\leq 5 \end{cases}$ and list 2 solutions

$x+4y\geq 2$

x-int: $x+4(0)=2$

$x=(2,0)$

$x+4y\geq 2$

$-x \quad -x$

$\frac{4y}{4} \geq \frac{-x}{4}+\frac{2}{4}$

$y \geq -\frac{1}{4}x+\frac{1}{2}$

$2x-y+1>2$

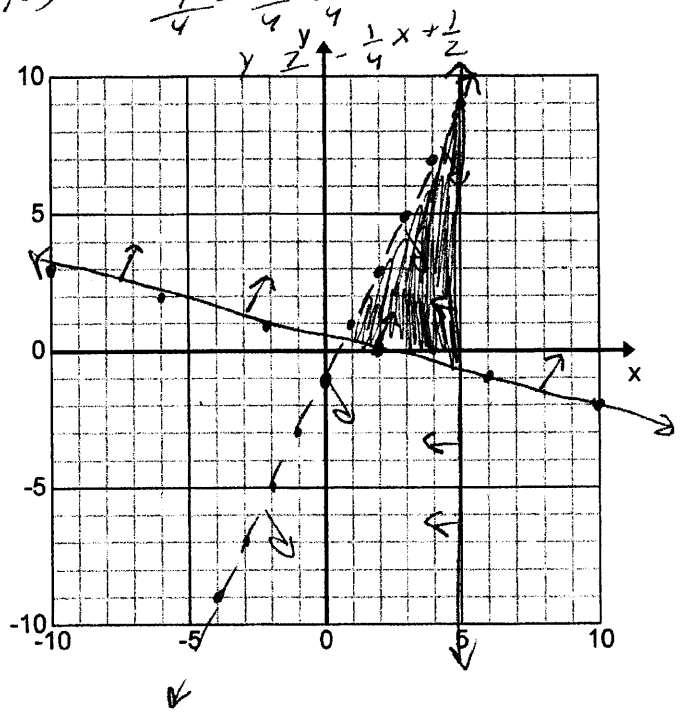
$-1 \quad -1$

$2x-y>1$

$-2x \quad -2x$

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

$y < 2x-1$



2 Solutions:

(3, 1)

(4, 2)

8) You receive a $100 gift certificate to a clothing store. The store sells T-shirts for $15 and dress shirts for $20. You would like at least 5 new items of clothing altogether. Sketch a graph to show the possible combinations of T-shirts and dress shirts you can buy. Give 3 combinations of T and dress shirts you could buy.

Define your variables:

x = # t-shirts

y = # dress shirts

Inequalities:

$15x+20y\leq 100 \rightarrow$ $15x+20y\leq 100$

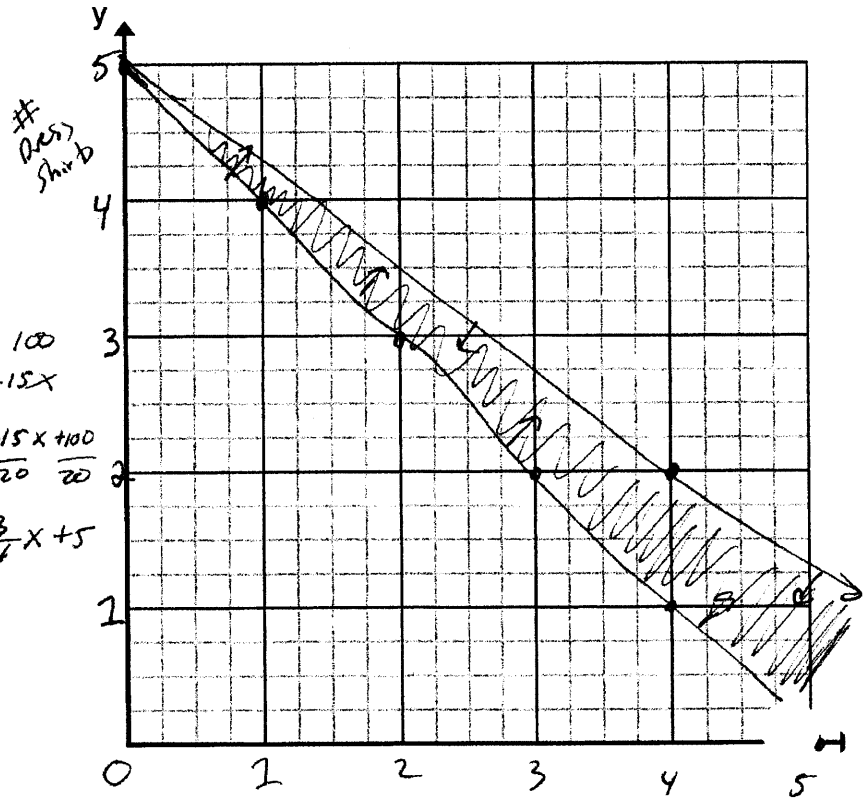
$-15x \quad -15x$

$x+y\geq 5$

$\frac{20y}{20} \leq \frac{-15x+100}{20} \quad \frac{20}{20}$

$y\geq -x+5$

$y\leq -\frac{3}{4}x+5$



3 combos of shirts t-shirts and dress shirts:

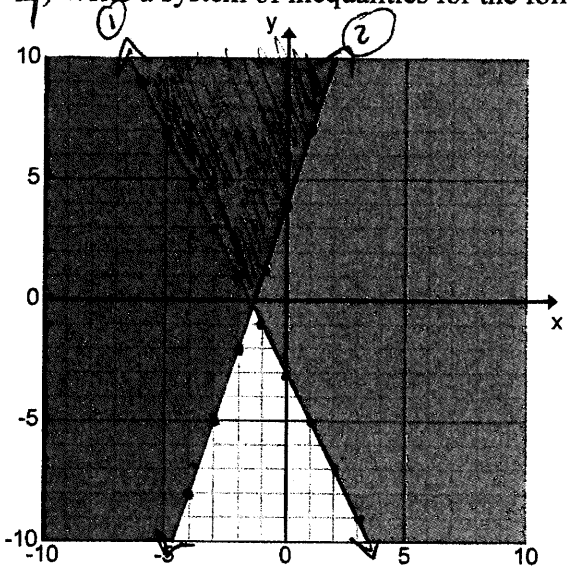
1) 4 t-shirts and 2 Dress

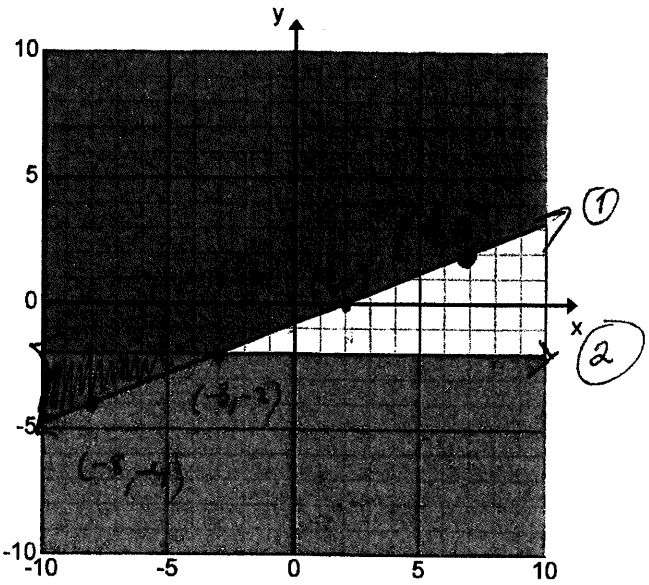
2) 4 t-shirts and 1 Dress

3) 3 t-shirts and 2 Dress

4) 1 t-shirt and 4 Dress

9) Write a system of inequalities for the following graphs.





(1) $y \geq -2x - 3$

(2) $y \geq 3x + 4$

(1) $y - 2 \geq \frac{2}{5}(x - 7)$

or

$y - 0 \geq \frac{2}{5}(x - 2)$

or

$y + 2 \geq \frac{2}{5}(x + 3)$

or

$y + 4 \geq \frac{2}{5}(x + 8)$

(2) $y \leq -2$