Name_____ **6-5 to 6-6 Test Review**

Date_____ **Algebra 1-2**

1) Tickets for your school's play are $3 for students and $5 for adults. On opening night 937 tickets are sold and $3943 is collected. How many tickets were sold to students?

Define your variables:

x = # tickets sold to students
y = " " " " adults

Equations:

$3x+5y=3943$
$-3(x+y=937) \rightarrow -3x-3y=-2811$

$3x+5y=3943$

$2y=1132$

$\frac{2y}{2}=\frac{1132}{2}$

$y=566$

$x+566=937$
$-566 \quad -566$
$x=371$

371 tickets sold to students

2) A company sells brass and steel machine parts. One shipment contains 3 brass and 10 steel parts and costs $48. A second shipment contains 7 brass and 4 steel parts and costs $54. Find the cost of each type of machine part.

Define your variables:

x = cost of 1 brass part
y = " " " steel "

Equations:

$2(3x+10y=48) \rightarrow 6x+20y=96$
$-5(7x+4y=54) \rightarrow -35x-20y=-270$

$-29x=-174$

$x=6$

$7(6)+4y=54$

$42+4y=54$
$-42 \quad -42$

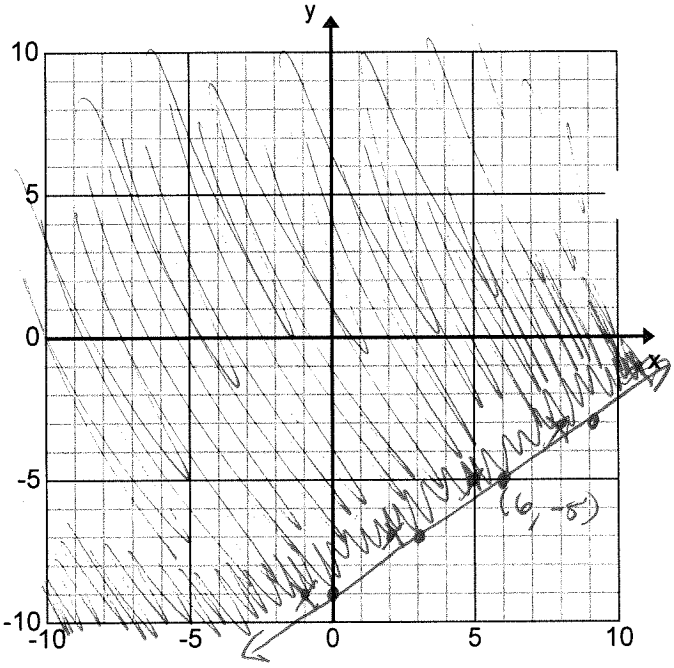
$\frac{4y}{4}=\frac{12}{4}$

$y=3$

It costs $6 for 1 brass part and $3 for 1 steel part.

3) 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

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

Way 1:

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

$\frac{8x}{2} \geq \frac{16}{2}$ $\quad \frac{-4y}{-4} = \frac{16}{-4}$

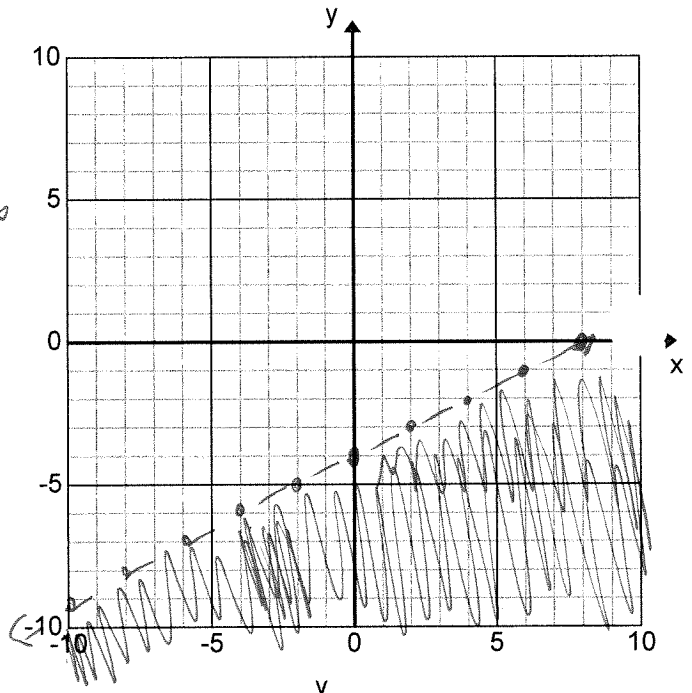
$X = (8, 0)$ $\quad Y = (0, -4)$

Test (0,0):

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

$0 > 16$

False!



Way 2:

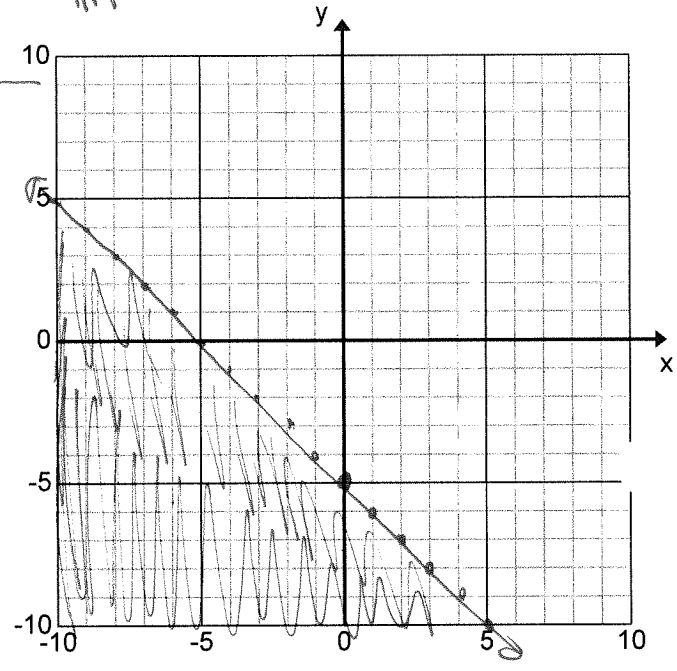
$2x-4y>16$

$-2x \quad -2x$

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

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

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



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

$0 \leq -5$ False

$5x+7y>-6$

$-5x \quad -5x$

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

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

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

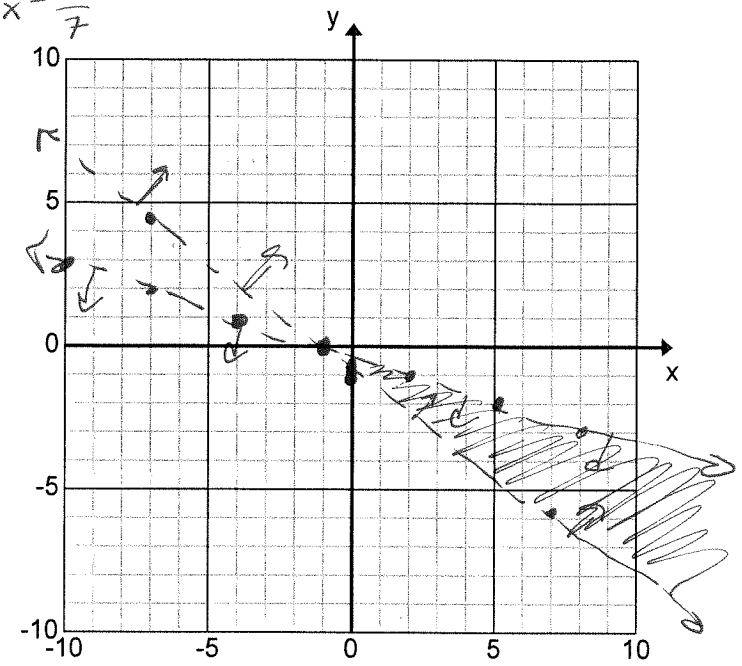
$\frac{3y}{3} < \frac{-x}{3} - \frac{1}{3}$

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

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

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

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



2 Solutions: (5, -3)

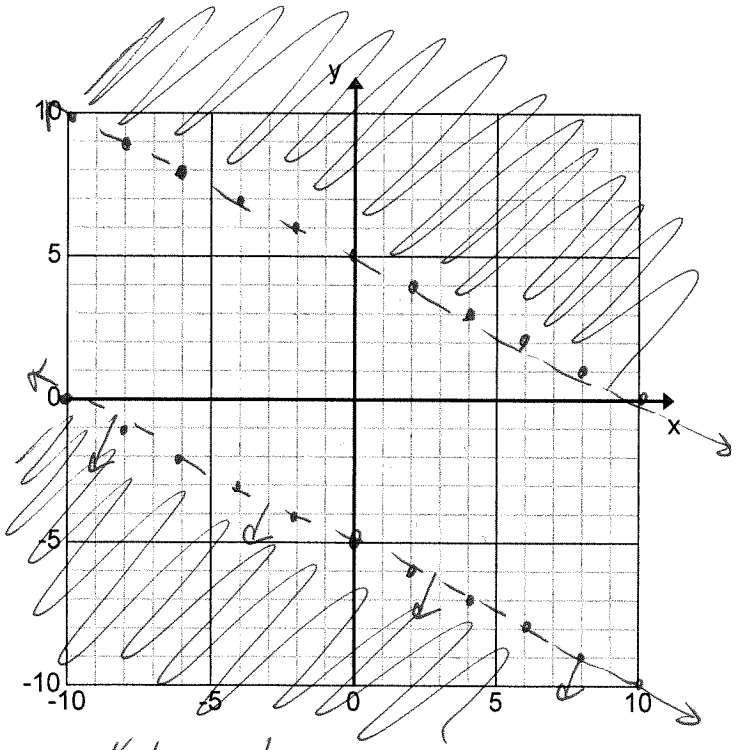
(7, -4)

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

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

(-6, 8)

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



2 Solutions:

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

8) 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: $x+4(0)=2$

$x=(2,0)$

$x+4y\geq 2$

$-x \quad -x$

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

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

$2x-y+1>2$

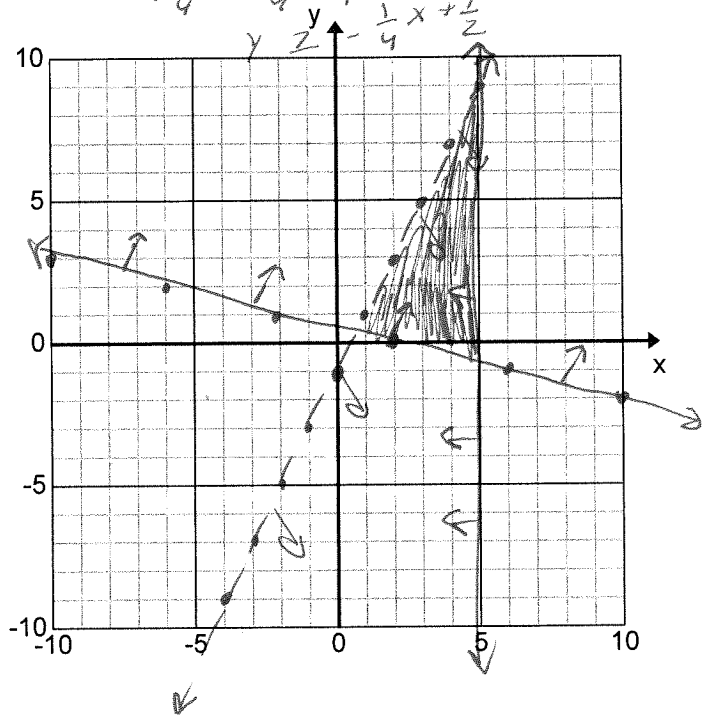
$-1 \quad -1$

$2x-y>1$

$-2x \quad -2x$

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

$y<2x-1$



2 Solutions:

(3, 1)

(4, 2)

9) 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:

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

$-15x \quad -15x$

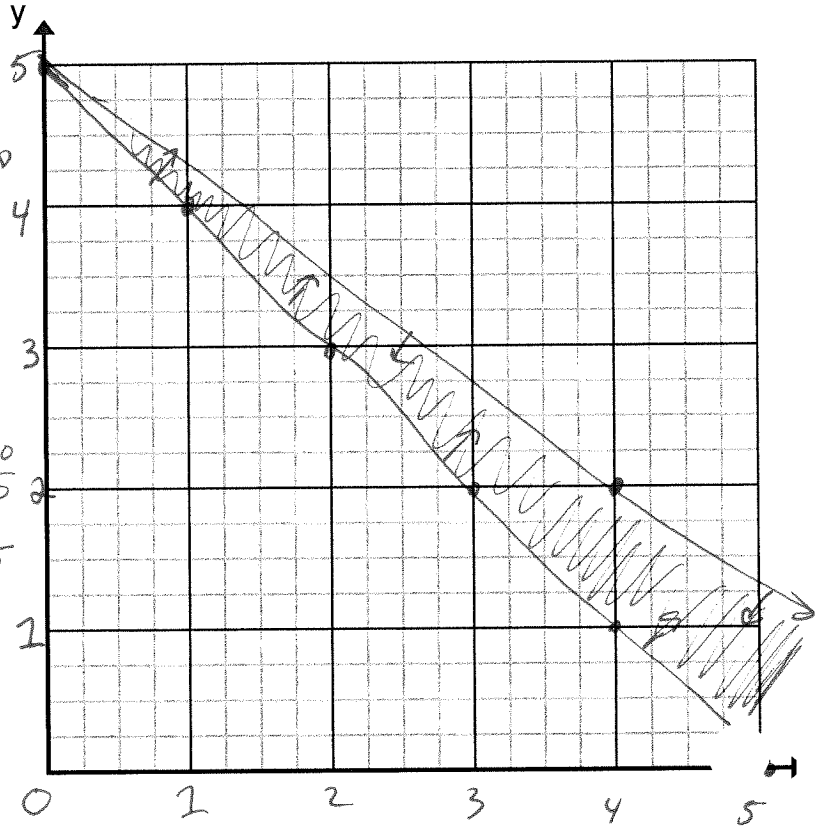
$x+y\geq 5$

$20y\leq -15x+100$

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

$y\geq -x+5$

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



3 combos of shirts t-shirts and dress shirts:

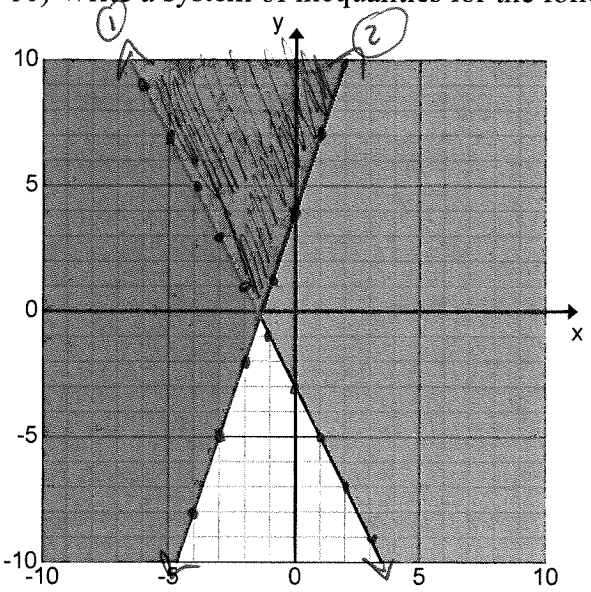
① 4 t-shirts and 2 Dress

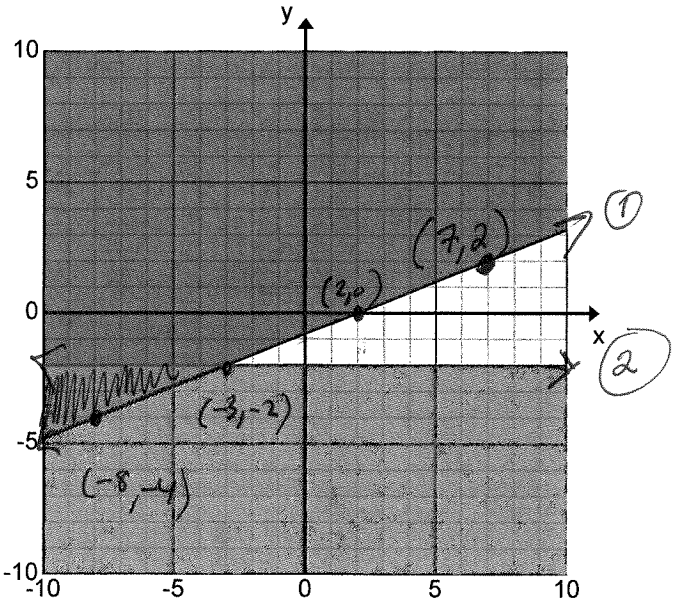
② 4 t-shirts and 1 Dress

③ 3 t-shirts and 2 Dress

④ 1 t-shirt and 4 Dress

10) 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) $x \leq 2$