Warm Up October 15, 2018

1.) A math test worth 150 points has 24 questions. The test consists of fill-in-the-blank questions worth 5 points each and essay questions worth 8 points each. How many essay questions are on the test?

X = FIB
y = EQ

$5(x+y=24) \rightarrow 5x+5y=120$

$5x+8y=150$

$5x+8y=150$

$-3y=-30$

$\frac{-3y}{-3}=\frac{-30}{-3}$

$y=10$

There are ten essay questions.

2.) The graph of a linear function passes through the points (2,3) and (5,9). Write an equation to represent the function. $y=mx+b \longrightarrow y=2x-1$

$m=\frac{9-3}{5-2}=\frac{6}{3}$

$m=2$

$3=2(2)+b$

$3=4+b$

$-4 \quad -4$

$-1=b$

3.) Find the missing value so that the line passing through the points has the given slope.

(x, 7) (1, -1); m = -2

$\frac{y_2-y_1}{x_2-x_1}=\frac{-1-7}{1-x}=-2$

$x=-3$

$\frac{-8}{1-x}=\frac{-2}{1}$

$-8=-2(1-x)$

$-8=-2+2x$

$+2 \quad +2$

$-6=2x$

$\frac{-6}{2}=\frac{2x}{2}$

$-3=x$

System of Inequalities Application

1. Suppose you buy flour (x) and cornmeal (y) in bulk to make flour tortillas and corn tortillas. Flour costs $1.50 per pound and cornmeal costs $2.50 per pound. You want to spend less than $25 on flour and cornmeal, but you need at least 6 pounds altogether.

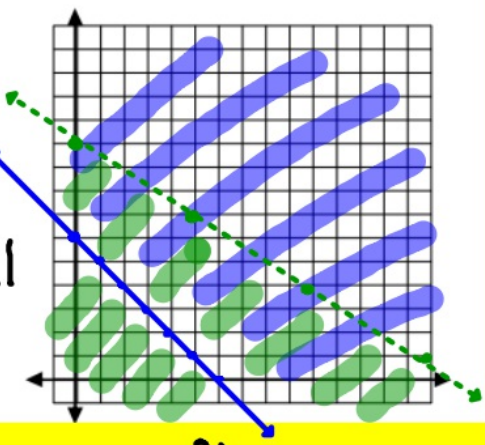
a. Write and graph a system of linear inequalities:

$x + y \geq 6$

$1.50x + 2.50y < 25$

$x \geq 0$

$y \geq 0$



b. Write two possible solutions:

i. 4 lbs. of flour and 3 lbs. of cornmeal

ii. 3 lbs. of flour and 6 lbs. of cornmeal

X = flour (lbs)

Y = cornmeal (lbs)

$x + y \geq 6$

$-x \quad\quad -x$

$y \geq -x + 6$

$1.50x + 2.50y < 25$

$-1.50x \quad\quad -1.50x$

$\frac{2.50y}{2.50} < \frac{-1.50x}{2.50} + \frac{25}{2.50}$

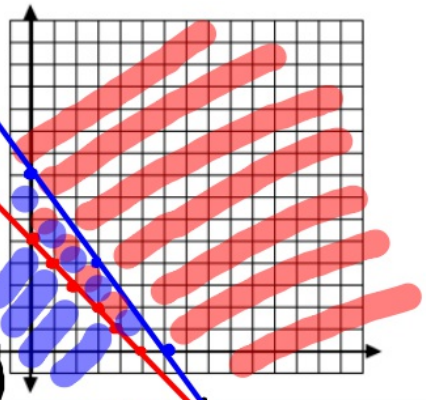
$y < -\frac{3}{5}x + 10$

2. A seafood restaurant owner orders perch and salmon. Perch is $4/lb and salmon is $3/lb. He wants to buy at least 50 pounds of fish but cannot spend more than $240.

a. Write and graph a system of linear inequalities:

$$x + y \geq 50$$
$$4x + 3y \leq 240$$

$x \geq 0$
$y \geq 0$



b. Write two possible solutions:

i. 30 lbs. of perch and 40 lbs. of salmon

ii. 20 lbs. of perch and 40 lbs. of salmon

X = perch (lbs)

Y = salmon (lbs)

$x + y \geq 50$
$-x \quad -x$
$y \geq -x + 50$

$4x + 3y \leq 240$
$-4x \quad -4x$
$3y \leq -4x + 240$
$\frac{3y}{3} \leq \frac{-4x}{3} + \frac{240}{3}$
$y \leq -\frac{4}{3}x + 80$

3. The "We Sell CDs" website plans to purchase ads in a local newspaper to advertise their site. Their operating budget will allow them to spend at most $3000 on this advertising adventure. An ad will cost $30 to appear in the weekday paper and $50 to appear in the weekend edition. They plan to run at least 20 ads.

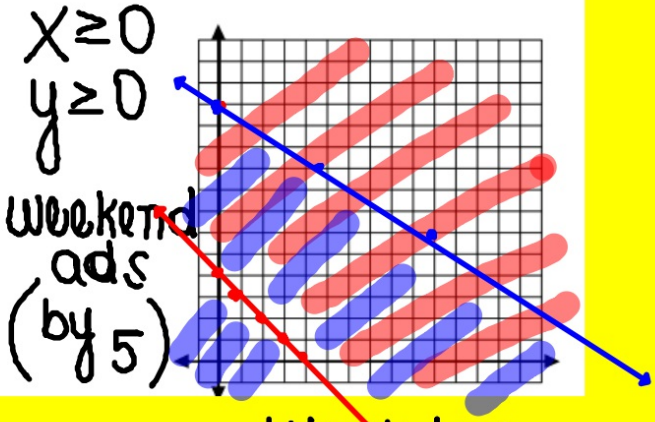
a. Write and graph a system of linear inequalities:

$x + y \geq 20$

$30x + 50y \leq 3000$

$x \geq 0$

$y \geq 0$



b. Write two possible solutions:

i. 30 weekday ads and 10 weekend ads

ii. 10 weekday ads and 30 weekend ads

X = Weekday ads

Y = Weekend ads

① $y \geq -x + 20$

② $y \leq -\frac{3}{5}x + 60$