

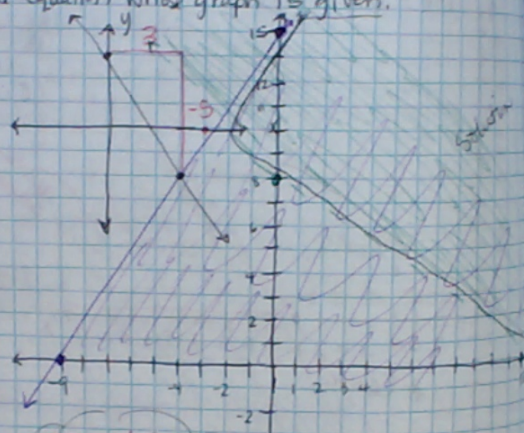
5.6 More or Less

January 20, 2011

Skills:

Find the equation whose graph is given.

$$y = -\frac{5}{3}x + 3$$



1. $-5x + 3y \leq 15$
 (0, 5) (3, 0)
 $2x + 3y > 24$
 (0, 8) (12, 0)

$0 + 0 \leq 15$ YES
 $0 + 0 > 24$ NO

2. $-10x + 6y \leq 90$
 (0, 15) (9, 0)
 $6x + 9y > 36$
 (0, 4) (6, 0)

$0 + 0 \leq 90$ YES
 $0 + 0 > 36$ NO

#3 is (-3, 0)
 A solution? Why/Why Not?
 No. The point is outside the shaded area.



SECONDARY SYSTEMS OF

5.6 More or Less

UNDER

4. Write the solution set for the system of inequalities shown.

Line 1

$$y \leq \frac{3}{2}x + 10$$

$$0 \leq 0 + 10$$

$$3 \leq 0 + 10$$

Line 2

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

$$0 \geq 0 + 2$$

$$3 \geq 0 + 2$$

Line 3

$$y \leq \frac{5}{3}x + 10$$

$$0 \leq 0 + 10$$

$$3 \leq 0 + 10$$

Line 1

$$y \geq \frac{3}{2}x + 10$$

$$12 \geq 0 + 10$$

$$12 \geq 10$$

Line 3

Line 2

$$y \leq \frac{1}{2}x + 2$$

$$12 \leq 0 + 2$$

$$12 \leq 2$$

No Solution

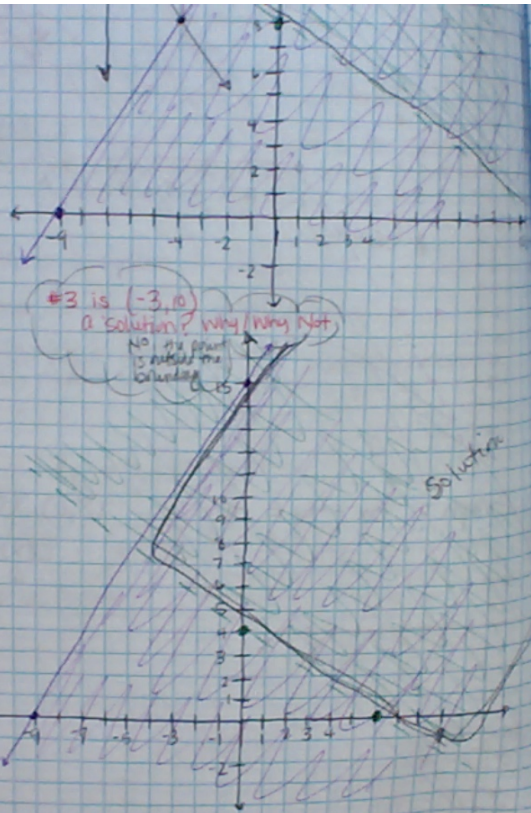
→ No Solution

1. $-5x + 3y \leq 45$
 (0, 15) (9, 0)
 $2x + 3y \geq 24$
 (0, 8) (12, 0)

$0 + 0 \leq 45$ YES
 $0 + 0 \geq 24$ NO

2. $-10x + 6y \leq 90$
 (0, 15) (9, 0)
 $6x + 9y \geq 36$
 (0, 4) (6, 0)

$0 + 0 \leq 90$ YES
 $0 + 0 \geq 36$ NO



(0, 3) ✓
 Solution UNDER

Line 1
 (0, 10)
 $y \leq \frac{3}{2}x + 10$
 0 ≤ 0 + 10
 3 ≤ 0 + 10 ✓

Line 2
 (0, 2)
 $y \geq \frac{1}{6}x + 2$
 0 ≥ 0 + 2
 3 ≥ 0 + 2 ✓

Line 3
 (0, 10)
 $y \leq \frac{5}{2}x + 10$
 0 ≤ 0 + 10
 3 ≤ 0 + 10 ✓

Line 1
 $y \geq \frac{3}{2}x + 10$
 12 ≥ 0 + 10
 12 ≥ 10 ✓

Line 2
 $y \leq \frac{1}{6}x + 2$
 10 ≤ 0 + 2
 10 ≤ 2 ✗

Line 3
 $y \geq \frac{5}{2}x + 10$
 12 ≥ 0 + 10
 12 ≥ 10 ✓



5.6 More or Less: A PRACTICE

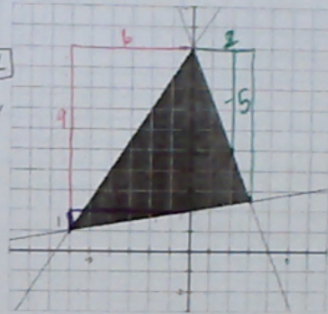
UNDERSTANDING TASK

4. Write the system of inequalities whose solution set is shown below:

Line 1
 $(0, 10)$
 $y \leq \frac{3}{2}x + 10$
 $0 \leq 0 + 10$
 $3 \leq 0 + 10 \checkmark$

Line 2
 $(0, 2)$
 $y \geq \frac{1}{6}x + 2$
 $0 \geq 0 + 2$
 $3 \geq 0 + 2 \checkmark$

Line 3
 $(0, 10)$
 $y \leq -\frac{5}{2}x + 10$
 $0 \leq 0 + 10$
 $3 \leq 0 + 10 \checkmark$

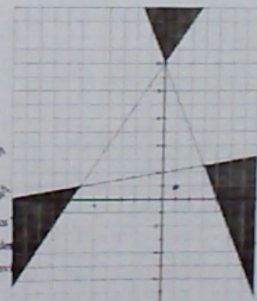


Line 1
 $y \geq \frac{3}{2}x + 10$
 $12 \geq 12$
 $12 \geq 12$

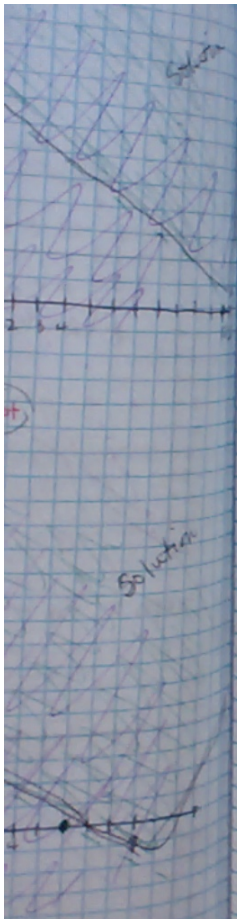
Line 2
 $y \leq \frac{1}{6}x + 2$
 $1 \leq \frac{1}{6}$
 $1 \leq \frac{1}{6}$

Line 3
 $y \geq \frac{5}{2}x + 10$
 $12 \geq 6 + 10$
 $12 \geq 16$
 $12 \geq 16$

No Solution
 to this system
 Mathematics
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* All of them have no overlapping regions for all lines



6. Carlos and Clarita have found two different cat foods that seem to appeal to even the most finicky of cats: Tabitha Tidbits and Figaro Flakes. Tabitha Tidbits contains 4 grams of protein and 6 grams of fat per ounce. Figaro Flakes contains 12 grams of protein and 4 grams of fat per ounce. Carlos wants to make a meal for dogs that contains at least 8 grams of protein and no more than 6 grams of fat.

Write and solve a system of inequalities that Carlos can use to determine possible combinations of Tabitha Tidbits and Figaro Flakes that will satisfy both of these constraints.

system of Inequalities

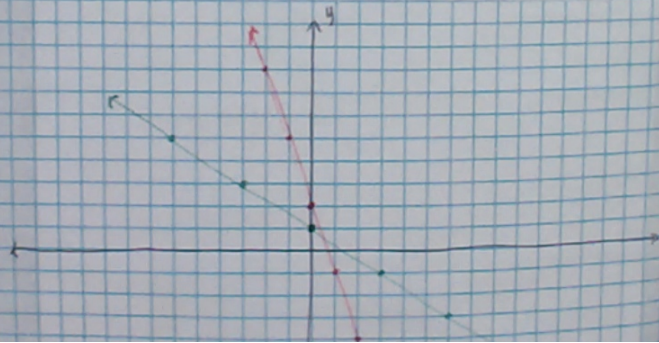
Protein: at least 8g

Fat: no more than 6g

$$\begin{cases} \text{Protein} \\ 12x + 4y \geq 8 & (0, 2) \quad (2/3, 0) \\ \text{Fat} \\ 4x + 6y \leq 6 \end{cases}$$

x = Figaro Flakes
y = Tabitha Tidbits

$$\begin{aligned} 4y &\geq \frac{-12x + 8}{4} \\ y &\geq -3x + 2 \\ 4y &\leq \frac{-4x + 6}{6} \\ y &\leq -\frac{1}{3}x + 1 \end{aligned}$$



5-7

Skills: De

4 is ...
4T is ...
12 is ...
12F is ...
4T + 12F

T = the number
F = the number

Review

$$\begin{cases} 3x - 2y \\ x - y \end{cases}$$

