

5-9

January 22, 2016

Skills: Define each coefficient, terms and expression

4 is... 4 grams of protein per ounce
 $4T$ is... 4 grams protein in Tabitha Tidbits
 12 is... 12 grams of protein per oz
 $12F$ is... grams of protein in Figure
 $4T + 12F$ is... total Protein in mixture ≥ 8

$$T = \# \text{ of } 02$$

$$F = \# \text{ of } 02$$

$$\frac{4T}{1.02} + \frac{12F}{1.02} = \text{grams}$$

T = the number of ounces for Tabitha Tidbits
 F = the number of ounces for Figure Flakes

Review

$$\begin{cases} 3x - 2y < 10 \\ x - y \geq 2 \end{cases}$$

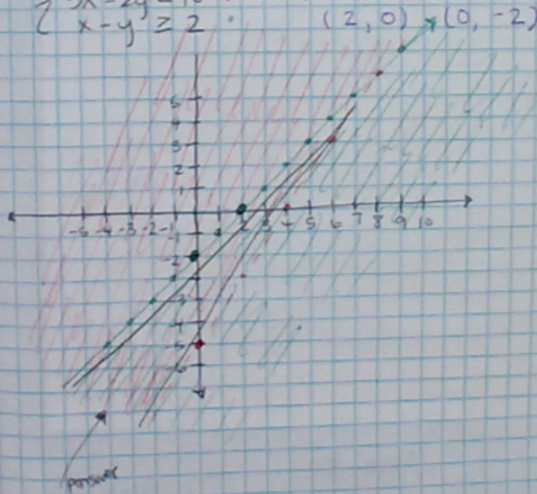
$$\frac{-2y \leq 8 + 3x}{-2} \quad \frac{y \geq \frac{3}{2}x + 5}$$

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

(0, 0) ✓

$$y \leq x - 2$$

(0, 0) No



Makes Tidbits

$$\frac{1x + 8}{4}$$

$$\frac{1x + 2}{4}$$

$$\frac{1x + 6}{4}$$

$$\frac{1x + 1}{4}$$

5.7 Continued

Window Washing Co.

SECONDARY MATHEMATICS MODULE 3
SYSTEMS OF EQUATIONS AND INEQUALITIES

5.7 Get to the Point

A Solidify Understanding Task



Carlos and Clarita need to clean the storage shed where they plan to board the pets. They have decided to hire a company to clean the windows. After collecting the following information, they have come to you for help deciding which window cleaning company they should hire.

- Sunshine Express Window Cleaners charges \$50 for each service call, plus \$10 per window.
- "Pete's" Window Cleaners charges \$25 for each service call, plus \$15 per window.

1. Which company would you recommend, and why? Prepare an argument to convince Carlos and Clarita that your recommendation is reasonable. (It is always more convincing if you can support your claim in multiple ways. How might you support your recommendation using a table? A graph? Algebra?)

Your presentation to Carlos reminds him of something he has been thinking about—how to find the coordinates of the points where the boundary lines in the "Pet Sitter" constraints intersect. He would like to do this algebraically since he thinks guessing the coordinates from a graph might be less accurate.

2. Write equations for the following two constraints.

- Space
- Start-up Costs

Find where the two lines intersect algebraically. Record enough steps so that someone else can follow your strategy.

3. Now find the point of intersection for the two time constraints.

- Feeding Time
- Pumping Time

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Sunshine
window cost = 10x + 50

"Pete's" less
window cost = 15x + 25

Sunshine =
y = 10x + 50

Continued



Homework Example

$$9. \begin{cases} y = 10x + 50 \\ y = 15x + 25 \end{cases}$$

A Solidify Understanding Task

Carlos and Clarita need to clean the storage shed where they plan to board the pets. They have decided to hire a company to clean the windows. After collecting the following information, they have come to you for help deciding which window cleaning company they should hire.

- Sunshine Express Window Cleaners charges \$50 for each service call, plus \$10 per window.
- "Paws" Too Window Cleaners charges \$25 for each service call, plus \$15 per window.

1. Which company would you recommend, and why? Prepare an argument to convince Carlos and Clarita that your recommendation is reasonable. (It is always more convincing if you can support your claim in multiple ways. How might you support your recommendation using a table? A graph? Algebra?)

Your presentation to Carlos reminds him of something he has been thinking about—how to find the coordinates of the points where the boundary lines in the "Pet Sitter" constraints intersect. He would like to do this algebraically since he thinks guessing the coordinates from a graph might be less accurate.

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- Space
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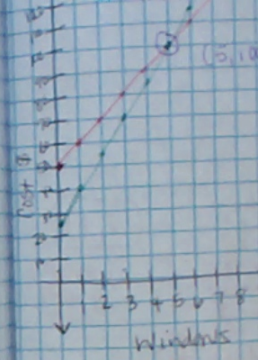
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Homework Example

$$9. \begin{cases} y = 6x + 2 \\ x + 2 = y \end{cases}$$

Sunshine

Windows	Cost	
0	50	↑10
1	60	↑10
2	70	↑10
3	80	↑10
4	90	
5	100	
6	110	

"Paws" Too

Windows	Cost	
0	25	↑15
1	40	↑15
2	55	↑15
3	70	
4	85	
5	100	
6	115	
7	130	

Sunshine:
 $y = 10x + 50$

"Paws" Too:
 $y = 15x + 25$

Substitution:
 $15x + 25 = 10x + 50$
 $-10x$
 $5x + 25 = 50$
 -25
 $5x = 25$
 $x = 5$

$y = 10(5) + 50$
 $y = 100$
 Solution: $(5, 100)$



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to board the pets. They
following information,
y they should live.

all, plus \$10 per window.
as \$15 per window.

want to convince Carlos and
convincing if you can
recommendation using a

been thinking about—how to
filter? constraints intersect
indicates from a graph might

ugh steps so that someone else

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Sunshine =
 $y = 10x + 50$



Homework Example #9

$$9. \begin{cases} y = x + 1 \\ x + 2y = 8 \end{cases}$$

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

$$y = 3$$

$$\begin{aligned} x + 2(x+1) &= 8 \\ x + 2x + 2 &= 8 \\ 3x + 2 &= 8 \\ \frac{3x}{3} &= \frac{6}{3} \\ x &= 2 \end{aligned}$$

(2, 3)