p. 55 # 10, 12, 11f, 20, 13

p. 26 # 7 (later)

10. let x be the amt of 99% cocoa.
let y " " " " 70% " .

① $x + y = 500$ (total mass)

② $0.99x + 0.7y = 0.86(500)$ (amount of cocoa in the mixture)

11f) $9\left(\frac{x}{9}\right) + \frac{9(y-3)}{3} = 9(1)$ ① $\times 9 \rightarrow x + 3(y-3) = 9$

$x + 3y - 9 = 9$

$\boxed{x + 3y = 18}$

$2\left(\frac{x}{2}\right) - 2(y+9) = 2(0)$ ② $\times 2 \rightarrow x - 2(y+9) = 0$

$x - 2y - 18 = 0$

$\boxed{x - 2y = 18}$

$x + 3y = 18$ ①

$-\ x - 2y = 18$ ②

$\frac{5y}{5} = \frac{0}{5}$

$y = 0$

$x = 18$

12.

	C	A	
Orange	$0.26x$	$0.13x$	$x \rightarrow$ amt of oranges
Tomato	$0.13y$	$0.42y$	$y \rightarrow$ amt of tomatoes.
	13 mg	20.7 mg	

① Total C: $0.26x + 0.13y = 13$

② Total A: $0.13x + 0.42y = 20.7$

13. $x + y \rightarrow$ time.

20. $2xy + 3 = 4y$ ① $\times 3 \rightarrow 6xy + 9 = 12y$

$3xy + 2 = 5y$ ② $\times 2$

$-\ 6xy + 4 = 10y$

$5 = 2y$

$\frac{5}{2} = y$

Sub into ①

$2x\left(\frac{5}{2}\right) + 3 = 4\left(\frac{5}{2}\right)$

$5x + 3 = 10$

Wednesday, February 19, 2020

1.6 Solving Linear Systems Using Algebra - Elimination (Continued)

Bellwork:

1) Explain what you would do to eliminate x from the given system of equations. What would you do if you had to eliminate y? Choose a variable to eliminate and solve.

$$3x - 4y = 5$$
$$3x + 5y = 2$$

2) List some advantages to solving using elimination.

3) What are some disadvantages to, or common errors that occur when we use elimination to solve?

4) How are substitution and elimination similar?

Wednesday, February 19, 2020

1.6 Solving Linear Systems - Elimination (Continued)

Reminders about word problems:

- Write 'let' statements;
- Write a system of equations;
- Solve using substitution or elimination;
- Write a concluding (∴) statement.

Remember that your 'let' and 'therefore' statements must relate back to the question!

Let's solve #3 on p. 54 together:

Some Common Types of Word Problems:

1) Relative Value Problems

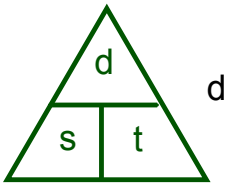
These questions sound like riddles and make you figure out values using other unknowns.

Example:

The difference between two numbers is 45. Three times the larger number less five times the smaller number is 75. Find the numbers.

2) Rate Problems

****ALWAYS make time your unknown here****



distance = speed x time

Use a table like the one shown below to organize your information.

	Speed	Time	Distance
A			
B			
Total	----		

The shaded columns will contain your equations if you do this properly!

ex/ Kyra goes on a ski trip, driving 393 km from her home in LaSalle to Blue Mountain on Lake Huron. She travels at an average speed of 70 km/h along the highway, and then at 50 km/h on the narrow roads leading to the mountain. The journey takes her 6 hours. How long did Kyra spend driving on narrow roads?

	Speed	Time	Distance
Highway			
Narrow Roads			
Total	----		

3) Mixture Problems

Two different kinds of coffee beans were blended. Individually, they cost $2.30/kg and $3.20/kg. How much of each kind was used if 200 kg of the resulting mixture cost $3/kg?

Let x be the mass of \$2.30/kg beans.
Let y be " " " \$3.20/kg beans.

① Total mass: $x + y = 200$ ×200

② Cost: $2.3x + 3.2y = 600$

① ×2.3 $\ominus$ $2.3x + 2.3y = 460$

$0.9y = 140$

$\frac{0.9y}{0.9} = \frac{140}{0.9}$

$y = 155.6$ kg

$x = 200 - 155.6$

$= 44.4$ kg

∴ They use 155.6 kg of \$3.20/kg beans and 44.4 kg of \$2.30/kg beans.

When you are dealing with mixture problems, remember that you will often need to multiply the constant term as well as the variables with a rate!