

Welcome Back MYP Math 9!

Self-assess:

	Assignment Effort Grade (Circle One)	Comments (What was interesting or challenging?)
Monday Date: <u>10-2</u> Topic: <u>Systems Quiz</u>	0 1 2	I began reviewing my notes for the upcoming unit test.
Tuesday Date: <u>10-3</u> Topic: <u>Systems of Equations Review</u>	0 1 2	I learned from my mistakes and practiced problems that were hard for me!
Wednesday Date: _____ Topic: _____	0 1 2	
Thursday Date: _____ Topic: _____	0 1 2	
Friday Date: _____ Topic: _____	0 1 2	

Class Plan:

1. Warm-up
2. 19D Problem Solving
3. Joke Break
4. Practice



Unit 1 Test
Friday, October 6th

Warm-up:

Two numbers have a sum of 45, and a difference of 13. Find the numbers.

$$\begin{array}{l} x: a \# \\ y: a \# \end{array} \quad \begin{array}{r} y + x = 45 \\ y - x = 13 \\ \hline 2y = 58 \\ \frac{2y}{2} = \frac{58}{2} \\ y = 29 \end{array}$$
$$\begin{array}{r} 29 + x = 45 \\ -29 \quad -29 \\ \hline x = 16 \end{array}$$

Example 6

Two numbers have a sum of 45 and a difference of 13. Find the numbers.

$$\begin{array}{r} x + y = 45 \\ x - y = 13 \\ \hline \end{array} \quad \begin{array}{r} 29 + y = 45 \\ -29 \quad -29 \\ \hline y = 16 \end{array}$$
$$\begin{array}{r} 2x = 58 \\ \frac{2x}{2} = \frac{58}{2} \\ x = 29 \end{array} \quad (29, 16)$$

Example 6

Two numbers have a sum of 45 and a difference of 13. Find the numbers.

Let x and y be the unknown numbers, where $x > y$.

From the information given,

$$x + y = 45 \quad \dots (1) \quad \{\text{'sum' means add}\}$$

$$\text{and } x - y = 13 \quad \dots (2) \quad \{\text{'difference' means subtract}\}$$

$$\text{Adding, } \begin{array}{r} x + y = 45 \\ x - y = 13 \\ \hline 2x = 58 \end{array}$$

$$\therefore x = 29$$

$$\text{Substituting } x = 29 \text{ into (1) gives } 29 + y = 45$$

$$\therefore y = 16$$

The numbers are 29 and 16.

$$\text{Check: In (1): } 29 + 16 = 45 \quad \checkmark \quad \text{In (2): } 29 - 16 = 13 \quad \checkmark$$

We need to find two equations containing two unknowns.



D Chapter 19

PROBLEM SOLVING

Many problems can be described mathematically by a **pair of linear equations**. The **Opening Problem** is one example.

Once the equations are formed, they can then be solved simultaneously, and we can then answer the original problem.

Step 1: Decide on two unknowns such as x and y . Do not forget the units.

Step 2: Write down **two** equations connecting x and y .

Step 3: Solve the equations simultaneously.

Step 4: Check your solutions with the original data given.

Step 5: Give your answer in sentence form.

The form of the original equations will help you decide whether to use substitution or elimination.

19D Problem Solving JIGSAW!

Left Half of the Room:

Fish and Chips



Right Half of the Room:

Coffee and Muffins

Directions:

- 1) Define your variables and write two equations from your problem.
- 2) Solve for variables and answer the question.

Done? Begin other problem

(We will teach each other)

Example: Fish and Chips

- 1) Three pieces of mockfish and two servings of chips cost \$8.10. Five pieces of mockfish and three servings of chips cost \$13.25. **What is the price of each piece of mockfish?**

Each serving of chips?

$m: ???$
 $c: ???$



Directions:

- 1) Define your variables and write two equations from your problem.
- 2) Solve for variables and answer the question.

Additional question: Mr. Ehlke would like to feed us mockfish and chips on his last day at Southwest. How much money will he need so that each student – and Ms. Paulson, have one piece of mockfish and one serving of chips? (145 students, two teachers)

Example: Fish and Chips

1) Three pieces of mockfish and two servings of chips cost \$8.10. Five pieces of mockfish and three servings of chips cost \$13.25. What is the price of each piece of mockfish? Each serving of chips?

m : mockfish price
 c : chips price

$$\begin{array}{r}
 3m + 2c = 8.10 \quad (-3) \\
 5m + 3c = 13.25 \quad (2) \\
 \hline
 -9m - 6c = -24.3 \\
 10m + 6c = 26.50 \\
 \hline
 m = \$2.20
 \end{array}$$

$$\begin{array}{r}
 3(2.2) + 2c = 8.1 \\
 6.6 + 2c = 8.1 \\
 2c = 1.50 \\
 \hline
 c = 0.75
 \end{array}$$

Directions:

- 1) Define your variables and write two equations from your problem.
- 2) Solve for variables and answer the question.



Additional question: Mr. Ehlke would like to feed us mockfish and chips on his last day at Southwest. How much money will he need so that each student – and Ms. Paulson, have one piece of mockfish and one serving of chips? (145 students, two teachers)

$$147(2.2) + 147(.75) = \underline{\text{Ehlke}}$$

$$\underline{\$433.65!}$$

Realistic???

Example: Coffee and Muffins

1) Seven cups of coffee and four muffins cost \$25.30. Two cups of coffee and three muffins cost \$9.55. What is the price of each cup of coffee? Each muffin?

Directions
1) Define your variables and write two equations from your problem.
2) Solve for variables and answer the question.

c: price of coffee

m: price of muffins

$$(7c + 4m = 25.3) \times (-3)$$

$$(2c + 3m = 9.55) \times (4)$$

$$-21c - 12m = -75.9$$

$$8c + 12m = 38.2$$

$$\begin{array}{r} -13c = -37.7 \\ \hline -13 \quad \quad -13 \end{array}$$

$$7(2.9) + 4m = 25.3$$

$$20.3 + 4m = 25.3$$

$$\begin{array}{r} -20.3 \quad \quad -20.3 \\ \hline 4m = 5 \end{array}$$

$$\frac{4m}{4} = \frac{5}{4}$$

$$m = \$1.25$$

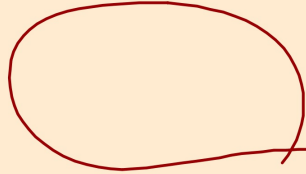
$$c = 2.9$$



Example: Coffee and Muffins

Additional question: Ms. Paulson would like to feed us muffins on Mr. Ehlke's last day at Southwest. How much money will she need so that each student – and Mr. Ehlke, have one muffin? (145 students, two teachers)

$$M = \$1.25 \text{ 147 people?}$$



Directions:

- 1) Define your variables and write two equations from your problem.
- 2) Solve for variables and answer the question.

Example: Coffee and Muffins

1) Seven cups of coffee and four muffins cost \$25.30. Two cups of coffee and three muffins cost \$9.55. What is the price of each cup of coffee? Each muffin?

M: cost/muffin

C: cost/cup coffee

$$7c + 4m = 25.30 \quad (-3)$$

$$2c + 3m = 9.55 \quad (4)$$

$$2(2.9) + 3m = 9.55$$

$$5.8 + 3m = 9.55$$

$$3m = 3.75$$

$$m = \$1.25$$

$$\begin{array}{r} -21c - 12m = -75.9 \\ 8c + 12m = 38.2 \\ \hline -13c = -37.70 \\ \hline -13 \quad -13 \\ \hline c = 2.9 \end{array}$$

Directions:

- 1) Define your variables and write two equations from your problem.
- 2) Solve for variables and answer the question.



Example: Coffee and Muffins

Additional question: Ms. Paulson would like to feed us muffins on Mr. Ehlke's last day at Southwest. How much money will she need so that each student – and Mr. Ehlke, have one muffin? (145 students, two teachers)

$$147(1.25) = \$183.75$$

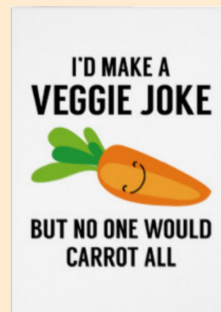
Realistic??



Directions:

- 1) Define your variables and write two equations from your problem.
- 2) Solve for variables and answer the question.

Joke Break!



Exercises... 19D Problem Solving

Directions: Choose 1, 2, or 3.
Then do 4 AND 5.



After school
Garages!

Directions: Choose 1, 2, or 3.
Then do 4 AND 5.

- 1) The school that Shanice goes to is selling tickets to a spring musical. On the first day of ticket sales the school sold 11 senior citizen tickets and 9 child tickets for a total of \$225. The school took in \$141 on the second day by selling 11 senior citizen tickets and 3 child tickets. Find the price of a senior citizen ticket.

x : [#]child
 y : [#]senior

$$9x + 11y = 225 \text{ (Day 1)}$$
$$3x + 11y = 141 \text{ (Day 2)}$$



**Directions: Choose 1, 2, or 3.
Then do 4 AND 5.**



2) Scott and Jacob are selling cheesecakes for a school fundraiser. Customers can buy New York style cheesecakes and apple cheesecakes. Scott sold 10 New York style cheesecakes and 3 apple cheesecakes for a total of \$182. Jacob sold 8 New York style cheesecakes and 3 apple cheesecakes for a total of \$154. Find the cost of one New York style cheesecake.

$$\begin{array}{l} n: \text{cost of NY} \\ a: \text{cost of Apple} \end{array} \quad \begin{array}{l} 10n + 3a = 182 \text{ (Scott)} \\ 8n + 3a = 154 \text{ (Jacob)} \end{array}$$

**Directions: Choose 1, 2, or 3.
Then do 4 AND 5.**

3) Mei and Ndiba are selling pies for a school fundraiser. Customers can buy blueberry pies and pumpkin pies. Mei sold 13 blueberry pies and 14 pumpkin pies for a total of \$384. Ndiba sold 13 blueberry pies and 5 pumpkin pies for a total of \$204. Find the cost of one blueberry pie.

$$\begin{array}{l} p: \text{price of pumpkin} \\ b: \text{price of blue} \end{array} \quad \begin{array}{l} 14p + 13b = 384 \\ 5p + 13b = 204 \end{array}$$



Directions: Choose 1, 2, or 3.
Then do 4 AND 5.

4) Natalie and Molly are selling cookie dough for a school fundraiser. Customers can buy packages of white chocolate chip cookie dough and packages of oatmeal cookie dough. Natalie sold 12 packages of white chocolate chip cookie dough and 7 packages of oatmeal cookie dough for a total of \$168. Molly sold 6 packages of white chocolate chip cookie dough and 9 packages of oatmeal cookie dough for a total of \$150. Find the cost each of one package of white chocolate chip cookie dough and one package of oatmeal cookie dough.

$$\begin{aligned}x &: \text{white choc. price} \\y &: \text{oatmeal price} \\12x + 7y &= 168 \\6x + 9y &= 150\end{aligned}$$



Directions: Choose 1, 2, or 3.
Then do 4 AND 5.

5) Alberto's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 9 senior citizen tickets and 2 student tickets for a total of \$62. The school took in \$188 on the second day by selling 8 senior citizen tickets and 12 student tickets. Find the price of a senior citizen ticket and the price of a student ticket.

$$\begin{aligned}x &: \text{senior price} \\y &: \text{child price} \\9x + 2y &= 62 \\8x + 12y &= 188\end{aligned}$$



Solutions:

- 1) \$9
- 2) \$14
- 3) \$8
- 4) package of white chocolate chip cookie dough: \$7, package of oatmeal cookie dough: \$12
- 5) senior citizen ticket: \$4, student ticket: \$13

**After school: Peer tutoring
in the garages!**