

Math Happening Project #4

Name: _____ Student ID #: _____ Class: _____

An Apple a Day Problem

Prewrite:

1. **Read** over the problem. **Do not write or solve anything**, just read the questions. After reading, come back and answer the following questions before you begin solving the problem.

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2. List 3 math vocabulary terms that should be used in your answers. These words should be directly related to Algebra I material.

a.	b.	c.
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3. What are two math concepts that you have **recently** learned about that will help you solve this problem?

a.	b.
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4. Write a quick description of your first two steps you will do to solve this problem.

a.

b.

An Apple a Day Problem

An apple farmer is deciding how to use each day's harvest. She can use the harvest to produce apple cider or apple juice for the apple festival in two weeks. The information she uses to make the decision is listed below.

- 1 bushel of apples will make 20 quarts of apple cider.
- 1 bushel of apples will make 15 quarts of apple juice.
- The apple farmer collect 18 bushels of apples.
- Today the apple farmer needs to produce a total of 330 quarts.

A. The information given can be modeled with a system of equations. Define your x and y variables represent in this situation.

x- variable: _____

y-variable: _____

B. The information given can be modeled with a system of equations. Write two different equations that can be used to model the situation. **Explain what each equation represents.**

Equation 1: _____

Explanation:

Equation 2: _____

Explanation:

- C. Use the equations in Part B to determine the number of bushels that were used to make apple cider and were used to make apple juice. Show or explain your work.

Bushels of apple cider: _____

Bushels of apple juice: _____

- D. Explain what the result in Part C means in context of the situation.

Reflection:

Pick one of the math concepts you listed in the pre-write. What is one of the most common mistakes students make in this situation? Why do they make the mistake? What suggestion would you give to future students in order to avoid the mistake? Please write at least 4-5 complete sentences.

The Summer Jobs Problem

Prewrite:

1. **Read** over the problem. **Do not write solve anything**, or take notes, just read the question. Then come back and answer the following questions before you begin solving the problem.
-

2. List 3 math vocabulary terms that should be used in your answers. These words should be directly related to Algebra I material.

a.	b.	c.
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3. What are two math concepts that you have **recently** learned about that will help you solve this problem?

a.	b.
----	----

4. Write a quick description of your first two steps you will do to solve this problem.

a.

b.

The Summer Jobs Problem

Tammy and Keith each work two part-time jobs in the summer mowing lawns and raking yards. Tammy earns \$10 for each lawn she mows and \$5 for each yard she rakes. She wants to earn more than \$200 from her part-time jobs. Keith earns \$12 for each lawn he mows and \$3 for each yard he rakes. He wants to earn more than \$180 from his part-time jobs.

- A.) Write a system of linear inequalities to model the number of lawns they each mow (x) and the number of yards they each rake (y).

Tammy: _____

Keith: _____

By the end of the summer, Tammy and Keith had mowed the same number of lawns and raked the same number of yards. Keith had met his goal of earning more than \$180 but Tammy did not meet her goal of earning more than \$200.

- B.) What is a possible combination of the number of lawns they could have each mowed and the number of yards they could have raked? Explain how you chose the combination and why you know that combination is correct.

The graph below represents this situation.

C.) Describe what each of the four regions represents in terms of Tammy and Keith. Give one ordered pair that falls within that region.

Region 1 (red)

Ordered pair: _____

Explanation:

Region 2 (purple):

Ordered pair: _____

Explanation:

Region 3 (blue):

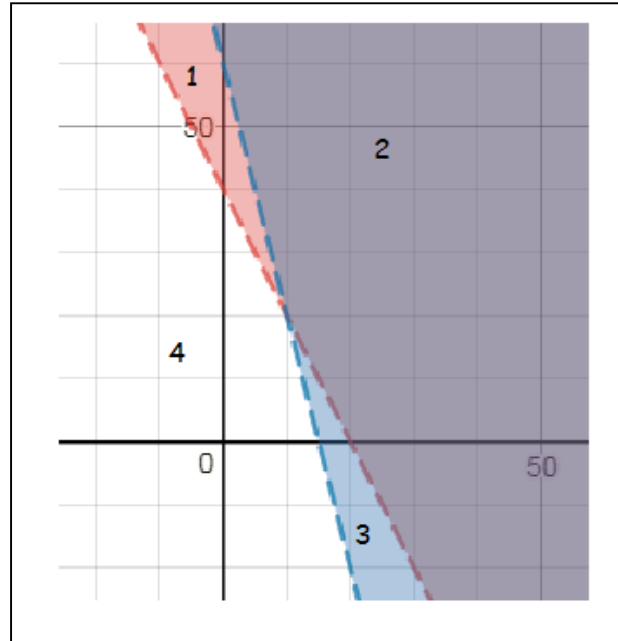
Ordered pair: _____

Explanation:

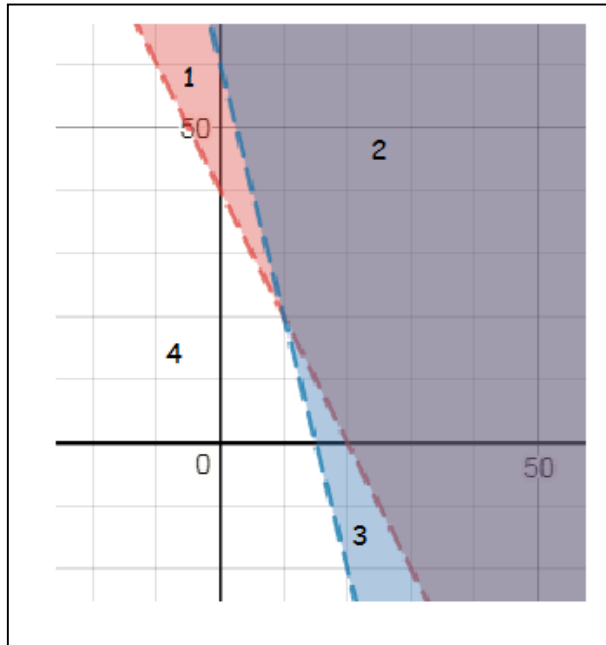
Region 4 (white):

Ordered pair: _____

Explanation:



D. The graph below represents this situation. Identify an ordered pair on Tammy's line and Keith's line. Use Tammy's inequality from Part A and Keith's inequality from Part A to show or explain why each inequality is represented as a dotted line.



Ordered Pair on Tammy's Line: _____ Ordered Pair on Keith's Line: _____

Tammy's inequality:

Keith's inequality:

Justification:

Justification:

Reflection:

Pick one of the math concepts you listed in the pre-write. What is one of the most common mistakes students make in this situation? Why do they make the mistake? What suggestion would you give to future students in order to avoid the mistake? Please write at least 4-5 complete sentences.