Algebra 1

Name:

Quiz #1 (2.1-2.7) **REVIEW**

Hour:

2.1: Introduction

2.2: Writing Equations to Model Relationships (Part 1)
- **Write an equation with numbers and variables to describe relationships (Don't forget to define the variables!!!)**
1. A team entered a contest and won $2,000. Write an expression to represent how much money each person on the team would get, based on the number of people on the team. (Don't forget to define the variables)

2. Susan has $300 in her bank account. She takes out $15 each week for w weeks. Write an equation that represents the amount of money m left in her bank account after w weeks. How many weeks does it take Susan to earn $240? (Hint use a graphing calculator with tables)

3. The density of an object can be found by taking its mass and dividing by its volume. Write an equation to represent the relationship between these three quantities. (Don't forget to define the variables)

2.3: Writing Equations to Model Relationships (Part 2)
- **Identify patterns in tables of values**
- **Use these patterns to write an equation from the table**
1. Describe in words how electricity bills and total expenses are related. Then write an equation for the relationship between electricity bills and total expenses that is represented below in the table.

electricity bills in dollars, x	85	124	309	816
total expenses in dollars, y	485	524	709	1,216

2. A chef is pouring oil from a large jug into equal size bottles. The table below shows the relationship between the number of bottles used and the volume of oil, in fluid ounces, In each bottle. Describe in words how the number of bottles and fluid ounces per bottle are related. Next write an equation for the relationship between number of bottles and fluid ounces per bottle and explain the relationship.

Number of bottles	Fluid ounces per bottle
1	72
3	24
4	18
6	12
8	9

2.4: Equations and Their Solutions
- **Given an equation, Select the values that could be solutions to the equation**
1. Bananas cost $0.50 each and apples cost $1.00 each. Select ALL the combinations of bananas and apples that Elena could buy for $3.50 and write an equation. Show your work!
   a. 2 bananas and 2 apples
   b. 3 bananas and 2 apples
   c. 1 banana and 2 apples
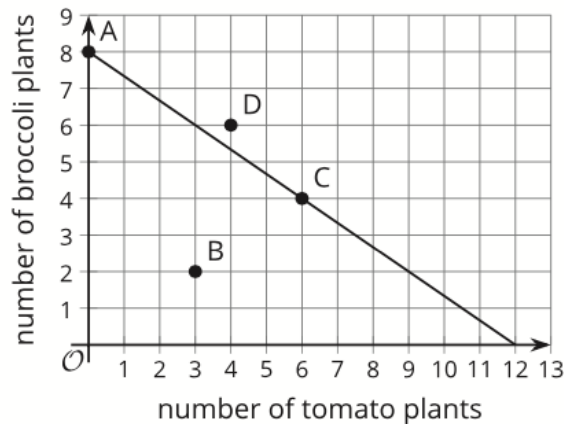   d. 1 banana and 3 apples
   e. 5 bananas and 2 apples

2. A group of 280 elementary students and 40 adults are going on a trip. The first type of bus holds 50 people and the second type of bus holds 56 people. Andrew says that 3 of the first type of bus and 3 of the second type of bus will hold all students and adults going on the trip. Is Andrew correct? Explain your reasoning/Show your work!

2.5: Equations and Their Graphs
- **Answer questions about points on a graph of a linear equation**
  - **What does it mean for a point to LIE ON the graph or NOT LIE ON the graph?**
  - **Given a graph of a linear equation and given the x coordinate, find the y coordinate or the other way around.**

1. To grow properly, each tomato plant needs 1.5 square feet of soil and each broccoli plant needs 2.25 square feet of soil. The graph shows the different combinations of broccoli and tomato plants in a 18 square foot plot of soil.

A. Point A   B. Point B
C. Point C   D. Point D

i. The solid is fully used when 6 tomato plants and 4 broccoli plants are planted.

ii. Only broccoli was planted, but the plot is fully used and all plants can grow properly.

iii. After 3 tomato plants and 2 broccoli plants were planted, there is still extra space in the pot.

Match each point to the statement that describes it to the right:

iv. With 4 tomato plants and 6 broccoli plants planted, the plot is overcrowded

2. If there are 9 tomato plants, how many broccoli plants are there if the plot is fully used?

3. If there are 6 broccoli plants, how many tomato plants are there if the plot is fully used?

4. Select ALL points that are on the graph of the equation $3x - 2y = 10$. Show all work!
   A. (-4, -11)
   B. (-2, 2)
   C. (12, 13)
   D. (-8, -17)

2.6: Equivalent Equations

- **Determine if two equations are equivalent.**
- **Identify operations that can be done to create equivalent equations.**
1. Select ALL the equations that are equivalent to the equation $3x - 4 = 5$. Make sure to explain why the equations are equivalent!

    a. $3x = 9$

    b. $3x - 4 + 4 = 5 + 4$

    c. $x - 4 = 2$

    d. $x = 9$

    e. $-4 = 5 - 3x$

2.7: Explaining Steps for Rewriting Equations

- **I can identify if an equation has no solution.**
- **I can explain how to prove two equations are equal.**
1. Erin says that equations A and B are <u>not</u> equivalent. Write a convincing argument as to why this is true:

    Equation A: $5x = 35$

    Equation B: $13 - 5x = 48$