



Use your pattern and equation skills to solve the following problems.

1. You have a collection of magazines. You began with six magazines and each month you added four new magazines to your collection. The table of values below shows the number of magazines in your collection each month.

Month	Number of magazines
1	6
2	10
3	14
4	18

- a. How many magazines will you have in month 6?
 - b. Write an equation to represent the relationship between the number of months and the number of magazines in your collection.
 - c. Draw a graph to represent the data in the table.
 - d. Explain how the graph could be used to check your answer from part a.
2. Describe the similarities and differences in the following group of equations.

$$12 - x = 3$$

$$3(x) = 27$$

$$x = 6 + 3$$

$$x \div 3 = 3$$

$$x = 3 \times 3$$

3. Write four different equations where $a = 4$. Use one of these equations to write a word problem representing a real-life situation.

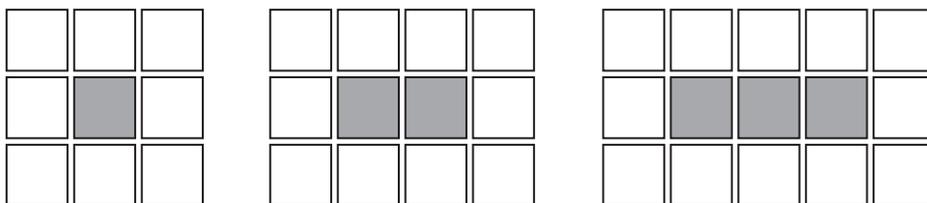
4. Use the diagram below to answer the questions that follow.



- a. Explain what you know about the mass of one golf ball.
 - b. If you add three golf balls to the left side of the scale, how many golf balls do you need to add to the right side of the scale to preserve equality?
 - c. If you add two golf balls to the left side of the scale, how many tennis balls do you need to add to the right side of the scale to keep it balanced?
 - d. One golf ball has a mass of 46 g. What is the mass of one tennis ball?
 - e. Write an equation to show the relationship represented in the diagram above.
5. Create a table of values to represent each situation. A tiger cub has a mass of 1400 g at birth and gains 200 g a day. A newborn German Shepherd has a mass of 3000 g and gains 525 g a week.
- a. If the tiger cub and the German Shepherd are born on the same day, what are their masses after 1 week? after 10 days?
 - b. When does the tiger's mass exceed the German Shepherd's mass?
 - c. Write two questions that can be answered using the given data.
6. Patrick has 24 mystery novels. His friend Suzanne has 17 mystery novels. How many more mystery novels does Patrick have than Suzanne?
- a. Write an equation to represent this situation.
 - b. Solve the equation to answer the question.
 - c. Compare your equation and your solution strategy with those of a partner.

7. Patrick has 24 mystery novels. Patrick has four times as many mysteries as his friend Rafael. How many mysteries does Rafael have?
 - a. Write an equation to represent this situation.
 - b. Compare your equation with the equation of a partner.
 - c. With your partner, determine whether the situation can be represented using a different equation.
 - d. Solve the equation to answer the question.

8. Manuel is designing a mosaic tile pattern for an art project. He needs to know how many border tiles he will need if he has five grey tiles to use as the centre tiles. The first few designs in Manuel's pattern are shown below.



- a. Create a table of values to represent the relationship between the number of centre tiles and the number of border tiles.
 - b. Write an equation to represent the relationship between the number of centre tiles and the number of border tiles.
 - c. How many border tiles will Manuel need if he has five centre tiles?
9. If you subtract 2 from a mystery number, the result is the same as the quotient of 12 and 2.
 - a. Write an equation using a letter variable to represent the problem.
 - b. What is the mystery number?

I can show my understanding of the relationships within tables of values.
 I can use the relationships within tables of values to solve problems.
 I can use graphs to show and describe patterns and relationships.
 I can use tables of values to show and describe patterns and relationships.
 I can use ordered pairs to identify points in the first quadrant of a Cartesian plane.
 I can plot points in the first quadrant of a Cartesian plane.
 I can use words to show number relationships.
 I can use equations to show number relationships.
 I can use objects and drawings to show and explain preservation of equality.
 I can use symbols to show and explain preservation of equality.
 I can write and solve an equation using a letter variable to represent a problem.
 I can write a word problem for a given equation.