In these activities you will identify solutions to equations. After completing the activities, discuss and/or present your findings to the rest of the class.



1. Reset page 1.3. Create each equation, then identify the values of x that make the equation true. Explain how you know you have all values that could be a solution.

a.
$$12-18=54$$

b.
$$0x-2=5$$

c.
$$0x + 4 = 4$$

- 2. A solution to an equation is the number for the variable that makes the equation a true statement.
 - a. What are the possible numbers for the variable x for any equation you create on page 1.3?
 - b. Is there a solution for 8x+16=24 in the numbers you gave for 2a? Explain why you know you have the solution.
 - c. Is there a solution for the equation 8x+2=6 in the set of values you gave for 2a?
- 3. Identify the solution for each equation below. Explain how you know there are no other solutions.

a.
$$19x+9=218$$

a.
$$19x+9=218$$
 b. $12x+12=12$ c. $24x=24$

c.
$$24x = 24$$



What is an Equation?

Student Activity

Name Class



- 1. Angelo's pet rabbit weighs twice the weight of Carmen's pet rabbit.
 - a. Does Carmen's or Angelo's rabbit weigh the most?
 - b. Angelo's pet rabbit weighs 12 pounds. Write an equation that could be used to find the weight, w. of Carmen's rabbit. Use the equation to find the weight of Carmen's rabbit. Does your answer seem reasonable? Why or why not?
 - c. Angelo's pet rabbit weighs 2 pounds less than twice the weight, x, of Simon's pet rabbit. Which rabbit weighs the most, Carmen's or Simon's? Explain your thinking.
 - d. Create each of the following equations using the file and find the solutions. Which equation seems reasonable to find the weight of Simon's rabbit and gives a reasonable solution?

- i. 12=2x+2 ii. 12=2x-2 iii. x-12=2 iv. w-2=12
- 2. Decide whether the following statements are true or false. Give an example to support your thinking. (You may want to use the file to find an example.)
 - a. Some equations have more than one solution.
 - b. Some equations do not have any solutions.

- c. Some expressions have an infinite number of solutions.
- d. The values of some expressions will always be even numbers.

Activity 3 [Page 1.5]

- 1. Write an expression that represents each situation. Let *x* be the age of Sol's brother.
 - a. Sol is one year away from being twice as old as his brother.
 - b. Summer is three years older than Sol's brother.
 - c. Sol's dad is five times as old as Sol's brother.
 - d. Sol's mom is 5 years younger than Sol's dad.
- 2. If Sol is 17 years old, use your work in the question above and write equations to help you find the ages of his mom, dad, brother and sister. You may use the file to solve the equations.
 - a. Find Sol's brother's age.
 - b. Find the ages of Summer, Sol's dad, and Sol's mom.



Name	
Class	

- 3. A ski resort had a 27-inch snow base at the beginning of the week and six days later it had 42 inches of snow. Let *x* represents the average number of inches of snow per day over a six-day period.
 - a. What does 2x represent? 6x?
 - b. Which of the equations 6x = 42, 6x + 27 = 42 and 6x 27 = 42 seem reasonable to represent the total amount of snow at the resort at the end of the sixth day? You might want to use the file to help you figure out your answer. Explain your reasoning.
 - c. The six-day report for four other ski resorts is in the chart. Which resort do you think had the greatest average amount of snow over the six days? The least amount? Explain your reasoning.

Resort	Snow base (inches)	Average snowfall per day (inches)	Depth at end of six days (inches)
Ski Run	32		54
DownHill	25		40
Creekside	34		48
Mountain Run	24		32

d. Use the file to help find the solution for the average amount of snow per day at each of the resorts. Explain how you would have to adjust your equations in each case.