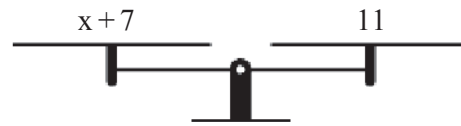
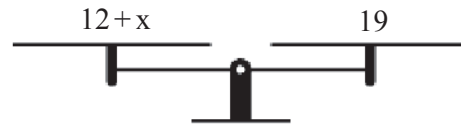


**Practice  
3-3*****Solving Addition and Subtraction Equations***

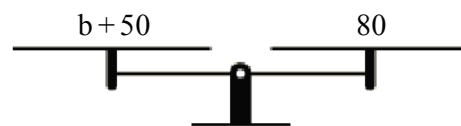
1. Use the balance scale to solve the equation  $x + 7 = 11$ .

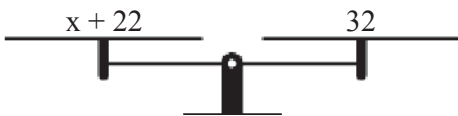


2. Your friend lost all of her tennis balls, so she bought 12 new ones. Later, she found  $x$  tennis balls under the sofa. Now she has a total of 19 tennis balls. The equation  $12 + x = 19$  models the situation. Use the balance scale to solve  $12 + x = 19$ . How many tennis balls did she find under the sofa?



3. The equation  $x + 8 = 9$  shows an operation. What is the inverse of that operation?
- ☐ A. The inverse operation is addition.
- ☐ B. The inverse operation is subtraction.
4. Complete the sentence.
- Subtracting 24 is the inverse of \_\_\_\_\_.
5. a) Write a simpler, equivalent equation to solve  $w - 12 = 7$ .
- b) What is the solution of  $w - 12 = 7$ ?
6. You have a deck of  $t$  trading cards. You give 21 cards to a friend and have 9 left for yourself. How many cards were in the original deck? Write a simpler, equivalent equation to solve  $t - 21 = 9$  and find the number of cards in the deck.
7. a) **Writing** Explain how using a balance scale can help you solve the equation  $15 + y = 28$ .
- b) What is the solution?
8. **Mental Math** There are a total of 80 students at a pep rally. If 50 of the students are girls, how many of the students are boys? The equation  $b + 50 = 80$  models the situation. Use mental math and the balance scale to solve the equation  $b + 50 = 80$ .



9. a) **Reasoning** The equation  $p - 23 = 49$  shows an operation. Identify the inverse of that operation.
- ☐ A. The inverse operation is addition.
  - ☐ B. The inverse operation is subtraction.
- b) Is it possible to solve the equation using subtraction? Explain your reasoning.
10. **Error Analysis** Pam and Jim are working on math homework. Their teacher gave them the following problem. Use an inverse operation to help solve the equation  $x + 22 = 27$ . As the first step in solving, Pam writes  $x + 22 + 22 = 27 + 22$ . Jim writes  $x + 22 - 22 = 27 - 22$ . Who is incorrect, and why?
- ☐ A. Jim is incorrect because he subtracted 22 from each side instead of adding.
  - ☐ B. Pam is incorrect because she subtracted 22 from each side instead of adding.
  - ☐ C. Jim is incorrect because he added 22 to each side instead of subtracting.
  - ☐ D. Pam is incorrect because she added 22 to each side instead of subtracting.
11. **Horse Count** This year, a rancher counted 225 horses on the range. This count is 22 less than last year. How many horses did the rancher count last year? Let  $h$  be the number of horses counted last year. Write a simpler, equivalent equation to solve  $h - 22 = 225$  and find the number of horses counted last year.
12. Use a balance scale to solve the following equation for the value of  $b$ .
- $$17 + b = 35$$
13. Write a simpler, equivalent equation to solve  $x - 24 = 40$ .
14. **Think About the Process** You and your friend have 32 pretzels to share. Your friend has 22 of them. If  $x$  is the number of pretzels that you have, the equation  $x + 22 = 32$  models the situation. Use the balance scale to solve the equation. What should you do first?
- 
- ☐ A. Remove 22 from the left side of the scale.
  - ☐ B. Add 22 to the left side of the scale.
  - ☐ C. Add  $x$  to the left side of the scale.
  - ☐ D. Remove  $x$  from the left side of the scale.
15. **Think About the Process** A volunteer made  $M$  muffins for a bake sale. After selling 28 muffins, 21 muffins remained. The equation  $M - 28 = 21$  models the situation. What is the first step in writing a simpler, equivalent equation to solve  $M - 28 = 21$ ?
- ☐ A. Add  $M$  to each side of the equation.
  - ☐ B. Subtract  $M$  from each side of the equation.
  - ☐ C. Add 28 to each side of the equation.
  - ☐ D. Subtract 28 from each side of the equation.