

**Practice
2-4*****Solutions—One, None, or Infinitely Many***

1. Classify the equation $7x + 3 = 7x - 4$ as having one solution, no solution, or infinitely many solutions.
2. Classify the equation $4x + 2 = 4x + 2$ as having one solution, no solution, or infinitely many solutions.
3. Which answer shows the correct solution for $6x + 19x - 4 = 5(5x + 4)$?
If necessary, fill in the answer to complete your choice.
 - ☐ A. $x = \underline{\hspace{2cm}}$
 - ☐ B. The equation has infinitely many solutions.
 - ☐ C. The equation has no solution.
4. Which answer shows the correct solution for $10x + 22x - 5 = 8(4x + 7)$?
If necessary, fill in the answer to complete your choice.
 - ☐ A. $x = \underline{\hspace{2cm}}$
 - ☐ B. The equation has infinitely many solutions.
 - ☐ C. The equation has no solution.
5. Which answer shows the correct solution for $4(2x + 4) = 10x + 15 - 2x + 1$? If necessary, fill in the answer to complete your choice.
 - ☐ A. $x = \underline{\hspace{2cm}}$
 - ☐ B. The equation has infinitely many solutions.
 - ☐ C. The equation has no solutions.
6. Which answer shows the correct solution for $3x + x + 2 = 8x - 4x + 2$? If necessary, fill in the answer to complete your choice.
 - ☐ A. $x = \underline{\hspace{2cm}}$
 - ☐ B. The equation has infinitely many solutions.
 - ☐ C. The equation has no solution.
7. **a) Writing** Classify the equation $49x + 33 = 49x + 38$ as having one solution, no solution, or infinitely many solutions.
b) Write an equation that has one solution, an equation that has no solution, and an equation that has infinitely many solutions.
8. **a) Reasoning** Classify the equation $64x - 16 = 16(4x - 1)$ as having one solution, no solution, or infinitely many solutions.
b) Of which type of equation are there the greatest number: Equations with no solutions, equations with infinitely many solutions, or equations with exactly one solution? Explain your reasoning.

- 9. Error Analysis** Your friend says the solution to $4x + 24x - 2 = 7(4x + 2)$ is $x = 16$.
- a) Which answer shows the correct solution for $4x + 24x - 2 = 7(4x + 2)$? If necessary, fill in the answer to complete your choice.
- ☐ A. $x = \underline{\hspace{2cm}}$
 - ☐ B. The equation has infinitely many solutions.
 - ☐ C. The equation has no solution.
- b) What was your friend's likely error?
- ☐ A. Your friend subtracted 2 from each side instead of adding.
 - ☐ B. Your friend incorrectly applied the Distributive Property.
 - ☐ C. Your friend combined the like terms incorrectly.
 - ☐ D. Your friend combined the constant terms incorrectly.
- 10. Cleaning Rates** Two rival dry cleaners both advertise their prices. Store A's prices are modeled by the expression $20x - 8$, where x is the number of items brought in. Store B's prices are modeled by the expression $5(4x + 4)$, where x is the number of items brought in. When do the two stores charge the same rate? Select the correct choice below and, if necessary, fill in the answer to complete your choice.
- ☐ A. The two stores charge the same rate when $\underline{\hspace{2cm}}$ items are brought in.
 - ☐ B. The two stores always charge the same rate.
 - ☐ C. The two stores never charge the same rate.
- 11. a) Open-Ended** Which answer shows the correct solution for $6x + 26x - 10 = 8(4x + 10)$? If necessary, fill in the answer to complete your choice.
- ☐ A. $x = \underline{\hspace{2cm}}$
 - ☐ B. The equation has infinitely many solutions.
 - ☐ C. The equation has no solution.
- b) Write a word problem that this equation, or any of its equivalent forms, represents.
- 12.** Classify the equation $5(10x + 6) = 50x - 4$ as having one solution, no solution, or infinitely many solutions.
- 13.** Solve $4(2x + 3) = 16x + 3 - 8x + 9$.
- Select the correct choice below and, if necessary, fill in the answer line to complete your choice.
- ☐ A. $x = \underline{\hspace{2cm}}$
 - ☐ B. The equation has infinitely many solutions.
 - ☐ C. The equation has no solution.

14. Think About the Process

- a) Which operations can be used to find the solution to $17x + 163x - 12 = 18(10x + 17)$?
- ☐ A. Addition and multiplication
 - ☐ B. Addition, multiplication, and division
 - ☐ C. Subtraction and multiplication
 - ☐ D. Addition, subtraction, multiplication, and division
 - ☐ E. Subtraction, multiplication, and division
- b) Solve $17x + 163x - 12 = 18(10x + 17)$. Select the correct choice below and, if necessary, fill in the answer line to complete your choice.
- ☐ A. $x = \underline{\hspace{2cm}}$
 - ☐ B. The equation has infinitely many solutions.
 - ☐ C. The equation has no solution.

15. Think About the Process

- a) What is a possible first step in solving $0.4(3x + 18) = 1.2(x + 6)$?
- ☐ A. Multiply each side by 10.
 - ☐ B. Subtract 10 from each side.
 - ☐ C. Add 10 to each side.
 - ☐ D. Divide each side by 10.
- b) Solve $0.4(3x + 18) = 1.2(x + 6)$. Select the correct choice below and, if necessary, fill in the answer line to complete your choice.
- ☐ A. $x = \underline{\hspace{2cm}}$
 - ☐ B. The equation has infinitely many solutions.
 - ☐ C. The equation has no solution.

1. no solution
2. infinitely many solutions
3. C
4. C
5. B
6. B
7. a) no solution
b) Answers will vary
8. a) infinitely many solutions
b) Answers will vary
9. a) C
b) C
10. C
11. a) C
b) Answers will vary
12. no solution
13. B
14. a) A
b) C
15. a) A
b) B