Name: _____ **Date:** _____ **Period:** _____

Chapter 2 Study Guide

Multiple Choice

Translate the sentence into an equation.

1. Nine less than the product of three and the number x is equal to one-half the sum of x and 12.
   a. $3x - 9 = \frac{1}{2}x + 12$ b. $3(x - 9) = \frac{1}{2}x + 12$ c. $\frac{3}{x} - 9 = \frac{1}{2}(x + 12)$ d. $3x - 9 = \frac{1}{2}(x + 12)$

Solve the equation. Then check your solution.

2. $a - \frac{1}{2} = \frac{3}{5}$
   a. $-1\frac{1}{10}$ b. $1\frac{1}{10}$ c. $\frac{9}{16}$ d. $\frac{1}{10}$

3. $-5.4 = -1.5 + h$
   a. 3.9 b. –3.9 c. 8.1 d. –6.9

4. $\frac{4}{5} + x = \frac{3}{7}$
   a. $\frac{13}{35}$ b. $-\frac{1}{2}$ c. $1\frac{8}{35}$ d. $-\frac{13}{35}$

5. $1\frac{1}{4} = a + \frac{3}{8}$
   a. $\frac{7}{8}$ b. $-\frac{1}{2}$ c. $-\frac{7}{8}$ d. $1\frac{5}{8}$

6. $8 = 1.88 + a$
   a. 9.88 b. 15.04 c. 6.12 d. –6.12

Solve the equation. Then check your solution.

7. $\frac{4}{5}k - 5 = -7 + \frac{2}{5}k$
   a. –5 b. 5 c. $-1\frac{2}{3}$ d. –30

8. $-\frac{4}{5}w + \frac{1}{4} = \frac{1}{5} + \frac{1}{3}w$
   a. $-\frac{27}{68}$ b. $\frac{3}{68}$ c. $\frac{3}{28}$ d. $-\frac{3}{68}$

9. $\frac{1}{2}(15 + 7d) = -\frac{d}{4}$
   a. 3 b. 2 c. –4 d. –2

10. $-65.376 = 7.2(9c + 1)$
    a. 1.12 b. –0.9 c. –1.12 d. –1.02

Translate the equation into a verbal sentence.

11. $5(x - y) = 3y + 12$
    a. Five times the difference of x and y is 12 more than the product of 3 and y. b. Five times the sum of x and y is 12 more than the product of 3 and y. c. Five times the difference of x and y is 12 more than the quotient of 3 and y. d. Five times x and y is 12 more than the product of 3 and y.

12. $3c + (c + 4) = 127$
    a. Three times c plus the difference of c and four is 127. b. Three times c plus the sum of c and four is 127. c. Three plus c plus the sum of c and four is 127. d. Three times c plus the product of c and four is 127.

Short Answer

13. $12 + r = 3$

14. $\frac{1}{5} = x - \frac{2}{5}$

15. $-12 = p - 7$
16. $-7b = -35$
17. $31 = -\frac{n}{6}$
18. $-\frac{5}{8}w = -9$
19. $7 + t = 11$
20. $-5 = v - 12$
21. $-8x = -56$
22. $3 - 5b = -32$
23. $\frac{10}{27} = \frac{a}{135}$
24. $\frac{9}{25} = \frac{p}{125}$
25. $-3a + 4 = -14$
26. Translate the following sentence into an equation.
A number x subtracted from 36 is three times the sum of four and x.
27. Translate the following equation into a verbal sentence.$3(x + y) = 2y - x$
28. Write an equation for each problem. Then solve the equation.
Twelve is added to the product of a number and 5. The result is –3. Find the number.
29. Translate the following sentence into an equation.
A number n added to 18 is seven times the difference of n and three.
30. Translate into a verbal sentence.$\frac{3}{y} - 5 = x\left(y + 7\right)$
31. Fifteen is added to the product of a number and 6. The result is 9. Find the number.

Write an equation and solve for the variable specified.

49. Twelve more than a number, *s*, equals another number, *p*, minus 4. Solve for *s*.
50. Seven plus 4 times a number, *x*, equals twice another number, *y*, minus 5. Solve for *y*.
32. Use cross products to determine whether the pair of ratios $\frac{4}{6}$ and $\frac{14}{21}$ form a proportion.
33. Solve the proportion $\frac{x}{6} = \frac{2}{9}$.
34. Solve the proportion $\frac{12}{15} = \frac{18}{b}$.
35. Use cross products to determine whether the pair of ratios $\frac{9}{21}$ and $\frac{12}{26}$ form a proportion.
36. Solve the proportion $\frac{3}{25} = \frac{y}{15}$.

Solve each equation. Check you answer.

37. $-x + 4 = x + 6$
38. $5n + 7 = 7(n + 1) - 2n$
39. $-4(p + 2) + 8 = 2(p - 1) - 7p + 15$
40. $9 - t = t + 3$
41. $2(y - 6) = 3y + 12 - y$
42. $17 + 3(z - 2) - 11z = -7(z + 2) + 14$
43. $3x - 5(x - 6) = 2(10 - x) + 10$
44. Solve $\frac{a}{b}x - c = 0$ for *x*.
45. Solve $\frac{r}{s} + t = 4v$ for *r*.
46. Solve $ax - n = r$ for *x*.
47. Solve $\frac{4x + t}{r} = s$ for *x*.
48. Does the pair of ratios form a proportion? Use cross products to help you decide.$\frac{5}{3} = \frac{42}{18}$

51. One sixth of a number, *p*, is 5 more than two thirds another number, *q*. Solve for *p*.