Name _____ Period _____

Unit 5 Study Guide

**Solving One-Sided Equations**

Solve each equation for the given variable. SHOW ALL OF YOUR WORK!

1. $\frac{x}{5} + 4 = -3$

2. $-31 = -8x + 25$

3. $7x - 63 - 2x = 62$

4. $\frac{3}{4}x - 12 = 9$

5. $-4x + 3(6x + 10) = -82$

6. $132 = -3x - 6(-3x - 7)$

**Solving Equations with Variables on Both Sides**

Solve each equation for the given variable. SHOW ALL OF YOUR WORK!

7. $-4x - 49 = -11x + 56$

8. $3n - 5 = -8(6 + 5n)$

9. $-3(4x + 3) = 43 - 4(6x + 1)$

10. $12x - 6 = 10x$

11. $38 + 7k = 8(k + 4)$

**Determining the Number of Solutions**

Solve each equation to determine if the equation has one solution, no solutions, or infinite solutions. Circle your choice. If there is one solution, write the solution in the blank. SHOW ALL OF YOUR WORK!

12. $24x - 22 = -4(1 - 6x)$

One Solution: _____ Infinite Solutions No Solution

13. $-8n + 4(1 + 5n) = -6n - 14$

One Solution: _____ Infinite Solutions No Solution

14. $2x + 8 = 2(x + 4)$

One Solution: _____ Infinite Solutions No Solution

15. $a + 5 = -4a + 5$

One Solution: _____ Infinite Solutions No Solution

**Solve Equations in Context**

Write an equation to represent each of the following situations. Identify what your variable represents. Then solve your equation to find the solution and write your answer in a complete sentence.

16. Two t-shirt companies want to make the eighth-grade shirts. Company A charges a $50 fee plus $3 per shirt. Company B charges $20 plus $5 per shirt. How many shirts would you have to buy for the total cost to be the same for Company A and Company B?

17. Thomas is saving for a pair of new Nike Lebron 12 iD shoes that cost $245. He has $29 in his savings account and makes $18 per week by mowing lawns. How many weeks until he has saved enough to afford the shoes?

18. Anna and Chloe are playing basketball. Anna has already scored 15 baskets and continues scoring at a rate of 5 baskets per minute. Chloe just joined and scores at a rate of 7 baskets per minute. How many minutes will it take before the girls have scored a total of 147 baskets?

19. Lily and Dawson are both avid texters. Lily has already sent 120 texts and continues at a rate of 30 text messages per hour. Dawson has only sent 20 text messages, but texts at a rate of 50 messages per hour. How many hours will it take before both girls have sent the same number of text messages?

20. Bre is paying for her own cell phone bill. At the beginning of the year, she has $375 in her account. If her bill is $50 per month, how many months will it take until she has only $25 in her account?

21. Nolan and Alex are both saving for the Tetons. Right now, Nolan owes $80 and is saving $15 per week. Alex owes $150, but is saving $20 per week. How many weeks will it take until the two boys have the same amount of money saved?