**Math 7** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
**Unit 2: Expressions and Equations**
**Study Guide**

**Parent Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Due Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Describe the difference between the solution for an inequality and the solution for an equation. Use examples to help explain.

2. What is the difference between an expression and an equation?

**Proficiency of Skills**

3. Translate the phrase into an algebraic expression: 3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 9 times the sum of *n* and 5

4. Simplify:  4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Simplify: (Distribute) 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Simplify:  (Distribute) 6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. Simplify:  7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. Evaluate the expression if a = 2, b = 5, and c = 3 8.\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 

9. Solve for y. -3y + 15 = 21 Check: 9.\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. Solve for w.  (Distribute) Check: 10.\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. Solve for x.  Check: 11.\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 

12. Solve for t.  Check: 12.\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. Solve for x.  Check: 13.\_\_\_\_\_\_\_\_\_\_\_\_\_

14. Solve:  2x – 8 ≤ 10 Checks: 14. \_\_\_\_\_\_\_\_\_\_\_\_\_

15. Solve: *<* 18 Check: 15. \_\_\_\_\_\_\_\_\_\_\_\_\_

**Application**

16. In order to ride Goliath at Six Flags you must be at least 52” tall. Write an inequality to represent *h,* the required height to ride Goliath.

 16. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. Write the following statement as an algebraic **equation**: 17. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

“seven less than the product of a number and three is equal to eleven”

18. Eight less than two times a number is 60. What is that number? 18. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Work:

**Define a variable, write an equation, and solve:**

19. Mike and Julie swim every day. Julie swims three times as many laps as Mike. If together they swim 20 laps, how many laps did Julie swim?

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 19. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Work:

20. Your Aunt sends you $20 for your birthday. Excitedly, you realize that this would buy you some wonderful new supplies for math class. Designer mechanical pencils cost $4 each and new “I Love Math” notebooks are a mere $6. **Write an inequality** to find out how many pencils you can purchase if you buy (1) notebook. **Write a second inequality** to find out how many notebooks you can buy if you purchase (1) pencil. Solve each equation.

Define a variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Work:

1st inequality: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Define a variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Work:

2nd inequality: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

21. Solve the following:  21. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. You are saving money to purchase a new mountain bike that costs $300. You already have $125 in the bank and you are being paid $9 an hour to babysit. **Write an inequality** to show the number of hours, h, you must babysit in order to have enough money for the bike.

Define a variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Work:

Inequality:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **Unit 2: Expressions and Equations**
**Post Test Answer Key**

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| **Problem** | **Standard** | **Answer** |
| 1. | MCC7.EE.4 | The equation has only one answer, *x* = 4. The inequality has an infinite number of answers, *x* could be any value greater than 4.  |
| 2. | MCC7.EE.1 | Answers may vary. Possible answer: Use properties to combine like terms. |
| 3. | MCC7.EE.1 |  |
| 4. | MCC7.EE.1 |  |
| 5. | MCC7.EE.4 |  |
| 6. | MCC7.EE.4 |  |
| 7. | MCC7.EE.4 |  |
| 8. | MCC7.EE.4 |  |
| 9. | MCC7.EE.4 |  |
| 10. | MCC7.EE.1 |  |
| 11. | MCC7.EE.1 |  |
| 12. | MCC7.EE.4 |  |
| 13. | MCC7.EE.4 | 17 |
| 14. | MCC7.EE.4 | 6 miles |
| 15. | MCC7.EE.3 | 8 games |
| 16. | MCC7.EE.4 | A |
| 17. | MCC7.EE.3 | C |
| 18. | MCC7.EE.4 | B |
| 19. | MCC7.EE.3 | A |
| 20. | MCC7.EE.4b | 29x + 8 ≤70; x≤2.14, so (2) pairs of jeans because you cannot buy 0.14 of a pair of jeans29+ 8x ≤70; x≤5.125, so (5) t-shirts because you cannot buy 0.125 of a t-shirt |