Name: _____

Date: _____

Practice Test - Green

Score: $\frac{}{50}$

Simplifying Expressions and Solving Basic Equations

Clearly show required work. Check Carefully!

1. Which 2 numbers would you combine first in order to complete the problem accurately and with as little mental effort as possible?   (2 points)

    a. $-10+(-36)+(-90)$

    b. $(13 \bullet 20) \bullet 5$

2. Use an Algebra Tile model to multiply   (1 point)

    $4(2x-5) =$

3. Now, use the Distributive Property to multiply $4(2x-5) =$ (1 point)

4. How would you explain to a 6th grader why the distributive property works (in problem like number 3) using the Algebra Tile model (in problem a like number 2)?   (1 point)

5. Simplify using the Distributive Property (*hint*: if it helps, draw an rectangle area picture to help yourself)   (2 points)

    a. $4 \bullet 19 - 4 \bullet 11$

    b. $4 \bullet 1150$

6. Vocabulary Check. Fill in the blank. ($\frac{1}{2}$ point per blank = 3 points)

   a) A _____ is a term that has no variable.

   b) A mathematical sentence with an equal sign is called a(n)_____.

   c) _____ are terms with the same variables.

   d) In the expression: $3x - y + 16$, 3 is the _____of x.

   e) Operations that undo each other are called _____.

   f) Any value or values that make an equation true is called the _____
      of the equation.

7. Simplify each expression   (2 points per expression = 8 points)

   a. $t - 3t + 2t + 4$ b. $-4(x - 3) + 10x - 10$

   c. $6(2x + y) + 2y$ d. $3(w + 4) + 5(-3w)$

8. Is the given number a solution of the equation? Say Yes or No and show how you know.
                                                                        (1 point)

   $-x - 6 = -6$; 1

9. For each problem below, write an equation. Is the given value a solution?

     a. You typed a 600 word essay in 12 minutes. Let w be the number of words you can type in one minute. Can w be 60?   (2 points)

     b. Brittany read 20 pages less than Jee Eun. Brittany read 15 pages. Let J be the number of pages Jee Eun read. Can J be 35?   (2 points)

10. Solve using Backtracking. Show your backtracking work. Check your solution. (2 points)

$$3\left[\frac{5(x-1)+4}{3}\right]-1=23$$

11. Solve the following one-step equations using Inverse Operations. Check your solution. (3 points each: 1 point for correct work, 1 point for correct answer, 1 point for correct check step)

    (3 points each: 1 point for correct work, 1 point for correct answer, 1 point for correct check step)

a. $11+b=-11$ b. $100=-20n$ c. $\dfrac{|y|}{2}=23$

12. For each word problem, define a variable, write an equation, solve the equation using inverse operations, and check your answer to make sure it makes sense.

(4 points each: 1 point for correct variable, 1 point for correct equation,
1 point for correct work/answer, 1 point for correct check step)

a. The Great Pyramid in Egypt was built around 2560 B.C. Over the years, it has lost 30 feet of height off its top and is now 451 feet tall. Find the original height of the Great Pyramid.

b. A wristwatch has a built-in digital camera with a rectangular viewfinder. An image shown by the viewfinder consists of 6240 tiny rectangular dots called pixels arranged in rows and columns. The viewfinder has 80 rows of pixels. How many columns does it have?

c. One type of thermal ice drill can drill through ice at a rate of 15 feet per minute by using heat to melt the ice. Find the time it takes the drill to melt through a sheet of ice 75 feet thick.

d. In 1989, the space probe *Magellan* was launched. It traveled toward the planet Venus at a speed of about 25,000 miles per hour. How far did *Magellan* travel in one day?