**Unit 1 Study Guide** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Math 1 Block: \_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Directions:** Solve each question below. Show all work on a separate sheet of paper for full credit. Circle or highlight your final answer.

**Goal 1:**  *SWBAT solve multi-step equations involving one variable*.

1. Solve for a: 
2. Solve for a: 
3. Solve for x: *x* + 15 = -3
4. Solve for x: 3(x – 8) – 2x = -(x + 24)
5. Solve for x: 5(12x – 2) = -3(-7x + 5)
6. Solve for x: -7x + 6 = 2(x – 4) – 5(-8 + 3x)
7. Solve for x: 5 + 7x = 7x – 12

**Goal 2:**  *SWBAT solve multi-step inequalities involving one variable and graph the solution on a number line*.

1. Solve for x and graph on a number line: x + 10 – 3(*x* –4) > 0
2. Solve for x, and graph your solution on a number line. 

**Goal 3:**  *SWBAT solve multi-step word problems for a defined variable*.

1. Susan is 4 years older than Kylie. Paige is one less than four times Kylie’s age. The combined age of the three girls is 33. How old is each boy? **Do not guess and check. You must show an equation to receive credit.**
2. You are shopping for sweaters. Old Navy sells 3 pairs of jeans for $24. Wet Seal sells 2 pairs of jeans for $16. Marshalls sells 4 pairs of jeans for $39. Which store has the best deal?
3. Find the middle of three consecutive integers such that the sum of eight times the smallest and three times the largest is 61.
4. The length of a rectangle is five less than four times the width. If the perimeter is 50 feet, find the length.
5. Find three consecutive even integers whose sum is -132.
6. The first side of a triangle is 3 inches shorter than the second side. The third side is 2 times as long as the first side. The perimeter is 19 inches. What is the length of all three sides?
7. The equation  can be used to estimate the speed, s, of a car in miles per hour, given the length in feet, x, of the tire marks it leaves on the ground. The posted speed limit on a freeway is 70 mph. If a car leaves a skid mark of 400 feet, explain whether the car was speeding. Justify your answer.

**Goal 4:**  *SWBAT solve literal equations for a specific variable, and substitute numerical values in to solve for this variable.*

1. If the volume of a sphere is represented by the equation . Solve for r.
2. Using the equation from question #18, if you have a sphere with a volume of 2143.6, find the approximate radius (use 3.14 for pi).
3. The standard form of a linear equation is Ax + By = C. Solve this equation for x.
4. Convert 512 meters to yards. (1 meter = 3.28 feet)
5. (No calculator) Kayla walked 1 mile in 15 minutes. Evan walked 1,760 yards in 10 minutes. In miles per hour, how much faster did Evan walk than Kayla?