Name:	
Algebra, Period	

Worksheet: Section 1.4 – Write Equations and Inequalities

<u>Read each problem carefully</u>. Show all steps. **Code** the word problems – circle numbers, important words <u>underline the variable (what the problem is asking for)</u>.

1. **Find the solution set**: <u>substitute</u> each given value into the equation. State the result, then tell whether each replacement results in a true or false sentence.

Replace x with:	2x + 3 = 13 Show work in this column	Result	True or False
3			
4			
5			
0			

Now, write the solution set: <u>{</u>}

2. Using the table, find the solution set for $x^2 + 12 \le 7x$ if the replacement set for x is $\{0,1,3,5\}$.

Replace x with:	x ² + 12 ≤ 7x substitute in this column	Result	True or False
0			
1			
3			
5			

Solution set: _____

Writing open sentences: On 3-9, write an equation or inequality. Be sure to code the problems.

box

- 3. The sum of 42 and a number n is equal to 51.
- 4. The difference of a number *z* and 11 is greater than or equal to 35.
- 5. The product of 4 and a number w is less than 37.
- 6. The quotient of a number *y* and 5 is at least 48.
- 7. A rectangle has a length that is 3 more than 5 times the width.
- 8. Seven less than t is at most 16.
- 9. The sum of a number *b* and 3 is greater than 4 and no more than 16.
- 10. Which inequality corresponds to the sentence "The product of a number *b* and 3 is no less than 12"?
 - A
 3b < 12 C
 $3b \le 12$

 B
 3b > 12 D
 $3b \ge 12$

Find the unit rate. Label answer appropriately.

11. $\frac{12runs}{5innings}$ 12. $\frac{4.5 p \text{ int } s}{3 servings}$

MMJH Date: _____

Code #13 and 14.

13. Alonso's family rented a car when they flew to Orlando. They paid a rental fee of \$20 and \$0.09 for each mile driven. How much did it cost to rent the car and drive 350 miles, not including tax? Fill in the table.

miles	y = 20 + .09x	$\cos t$
x		У

14. Passengers on many commercial flights may make calls from a telephone provided by the airline. On a certain airline a call costs \$3 to connect plus \$2 for each minute. Which equation best represents c, the total cost for a call that lasts m minutes?

A m = 3 + 2c B c = 3 + 2mC m = 2 + 3c D c = 2 + 3m

On 15 and 16, check whether the given number is a solution of the equation or inequality. <u>Show</u> substitution, then simplify.

15. $2y^2 - 1 < 20; 3$ 16. $\frac{x-5}{3} \ge 2.8; 11$

17. Simplify the expression. Show all steps.

$$2+3(3+7)^2 \div 5$$
.

18. Which is an equation?

А	3x + 2	С	4x + 2 = 10
в	2x + 3x + 6	D	6+3x+4

19. A pattern exists among the digits in the ones place when 2 is raised to different powers, as shown in the table below. For example, in $2^4 = 16$ the number in the ones place is 6.

Numbers in the Ones Place of Powers of 2

Power of 2	Number in
	ones place
2^{1}	2
2^{2}	4
2^3	8
2^4	6
2^5	2
2^{6}	4
2^{7}	8
2^{8}	6
2^{9}	2

- a. What pattern do you notice? _____
- b. Which digit is in the ones place in 2³⁸?

Code the problem. Show all steps.

20. A bottle rocket is fired upward. The equation that describes the path of the bottle rocket is $h = 88t - 9t^2$, where h is the height in feet above the ground after t seconds. Find the height of the bottle rocket after 5 seconds.

21. Write the next 3 terms in the sequence.



Show the pattern.

22. The terms in a sequence are 5, 9, 13, 17, ... Write an expression for the *n*th term of the sequence where *n* represents the number's position. Show work.