## Review for Test #I - Relationships and Reasoning in Quantities, Equations, and Graphs

Name: \_\_\_\_\_ Class: \_\_\_\_\_

For 1-4, identify the property shown in the following examples.

1.) 
$$6 + (3 + 1) = (6 + 3) + 1$$

2.) 
$$9(x + 3) = 9x + 27$$

3.) 
$$2 \cdot 123 = 123 \cdot 2$$

4.) 
$$a + (b + c) = a + (c + b)$$

Simplify.

5.) 
$$(3x^2 + 2x - 9) + (4x^2 - 7x + 13)$$

6.) 
$$(7x^2 + 4) + (x^2 - 2x - 4)$$



7.) 
$$(3x^2 + 2x - 9) - (4x^2 - 7x + 13)$$

8.) 
$$(7x^2 + 4) - (x^2 - 2x - 4)$$

9.) 
$$4x(x+8)-3x^2(2x-5)$$

10.) 
$$(x+5)(2x+1)-2x(x+5)$$

Multiply.

11.) 
$$(x+2)(x-8)$$

12.) 
$$(a-3)(a+3)$$

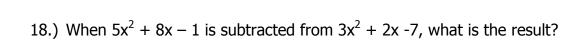
13.) 
$$(x+2)^2$$

14.)  $(2x+3)(x^2+5x+3)$ 

15.) 
$$(4x-5)^2$$

16.) 
$$(4x^2 - 3x + 7)^2$$

17.) The length of a side of a square window is (5x + 3). Find the area of the window in terms of x.





Simplify the radicals below.

21.) 
$$\sqrt{100}$$

23.)			
	a.)	Linear	A CONTRACTOR OF THE CONTRACTOR
	b.)	Quadratic	
	c.)	Exponential	

24.) In an elevation vs. time graph, what does a horizontal, flat line represent?

25.) Eric walks into a hospital to go to a doctor's appointment. He takes the elevator to the 4<sup>th</sup> floor. After walking around a bit, Eric realized he was on the wrong floor and takes the elevator again to the 11<sup>th</sup> floor. Eric has his check up and is sent to the basement of the building where the lab is to get some x-rays done. When the x-rays are done, he takes the elevator back to the main floor and leaves. Draw an elevation-versus-time graph that represents Eric's trip to the hospital.

26.) Graph the number of cells versus time in seconds.

Time (seconds)	0	1	2	3	4
Number of cells	2	4	8	16	32



Is there a pattern? If so, what is it?

27.) Create a flow chart to show that a(b + c) is equivalent to ac + ba. Use "C" for the Commutative Property, "A" for the Associative Property, and "D" for the Distributive Property

28.) Fill in the blanks showing that (x + 5)(3x + 4) is equivalent to  $3x^2 + 19x + 20$ . Write either "Commutative Property," "Associative Property," or "Distributive Property" on each blank.

 $= 3x^2 + 19x + 20$ 

$$(x+5)(3x+4) = (x+5) \cdot 3x + (x+5) \cdot 4$$

$$= 3x(x+5) + (x+5) \cdot 4$$

$$= 3x^2 + 15x + (x+5) \cdot 4$$

$$= 3x^2 + 15x + 4(x+5)$$

$$= 3x^2 + 15x + 4x + 20$$

$$= 3x^2 + (15x + 4x) + 20$$