

Name: _____
Date: _____
Class: _____

Algebra
Unit 6
EC

To be eligible to receive extra credit on the unit test you must have a score below 75. To receive extra credit you must score an 80% or higher on this assignment (anything lower results in no extra credit). If you earn extra credit is calculated in the following manner: $\text{Old Test Score} + (75 - \text{Old Test Score})(2/3) = \text{New Test Score}$. This assignment will not be accepted late for any reason other than missing the day of school it is due in which case it must be turned in the next day you are in school even if you do not have class.

1) [3] If a geometric sequence is defined as $t_1 = 18$ and $t_n = 3(t_{n-1})$ find the first 3 terms of this sequence and then create an exponential equation that would produce the same values.

2) [3] Simplify: $x^2(3x^3 - x + 10) - 2x(6 + 4x^2) - 8(10x - x^3 - 6x^4)$

3) [2] What would the average rate of change between $x = 4$ and $x = 7$ be for the function $q(x) = \frac{1}{2}(2)^x$?

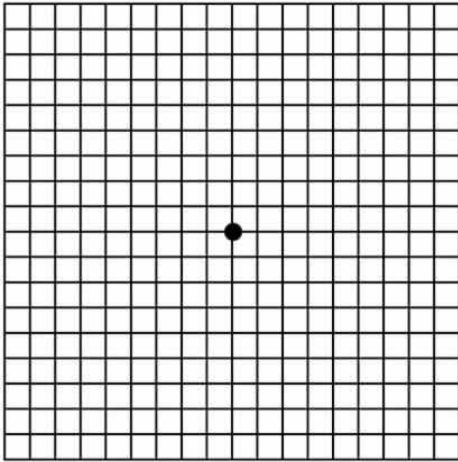
4) [3] The number of people in a workplace with a cold decreases by 10% each day. If 100 people had a cold on the 1st day, how many would still have a cold on the 6th day?

5) [3] Simplify: $\frac{(3a^2b^5c)^3}{9(ab^4c^3)^2}$

6) [3] If a recursive function is defined as:
 $a_1 = -2, a_2 = 6,$ and $a_n = 2(a_{n-1}) - 3(a_{n-2}),$ find the first 5 terms of this sequence.

7) [3] Find $h(-2)$ if $h(x) = 16(4)^x - 9x^0 + 4x$

8) [3] Sketch a graph of $y = \frac{1}{2}4^x$ on the domain $0 < x \leq 4$



9) [3] Find an exponential equation that could be used to represent the data:

X	-2	-1	0
Y	16	4	1

10) [3] If you put \$2500 in an account that earns 4.25% interest each year, create a function, $h(x),$ that could be used to find the amount of money in this account after x years. After which full year would you have at least \$3250 in this account?

11) [3] An item in the store is currently listed at a cost of \$300. The cost is increased by 20% and then this new price is decreased by 35%. What is the final cost after both changes? What percent discount would take the original cost to the final cost?