Algebra 2 (lvl 2) **Name**_____
Final Exam - Day 2

Part A: Multiple Choice

Directions: For problems 1-5 circle the correct response. Each problem is with 2 points.

1. Which of the following describes the solutions to the quadratic equation $x^2 - 5x = 6$.

a. Both solutions are negative numbers.

b. Both solutions are positive numbers.

c. One solution is positive, the other negative.

d. One solutions is positive, the other is zero.

e. There are no real number solutions to this equation.

2. Consider the following data set: 18,21,23,25,25,27,29,31,33,35. Which of the following statements is true?

a. The mean is greater than the median.

b. The median is greater than the mean.

c. The mode is greater than the median.

d. The mode is greater than the mean.

e. The mean, median, and mode are all equal.

3. An Algebra class has 18 students. At the end of the year, a teacher gives two awards to two different students: one goes to the student with the highest average for the year and the other goes to the student who contributed the most to class discussions. In how many ways can the teacher give out these two awards?

a. 153 **b.** 306 **c.** 324 **d.** 18 **e.** 296

4. The population of a city *t* years after 1990 is modeled by the exponential equation:

$P(t) = 100{,}000 \cdot (1.04)^t$, Which of the following best describes the population of the city

a. In 1990 the population was 100,000 and the population is growing by 400 people per year.

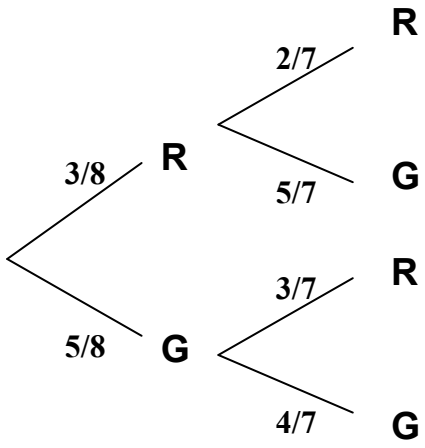
b. In 1990 the population was 100,000 and the population is decreasing by 40% per year.

c. The population is growing at a constant rate of 4% per year.

d. The population grew from 100,000 in 1990 to 200,000 in 2004.

e. The population was 140,000 people in 1991.

5. A jar contains 3 red marbles and 5 green marbles. An experiment consists of drawing two marbles, one after the other, out of the jar. What is the probability that at least one of the two marbles drawn will be green. The tree diagram below illustrates this situation.



a. 0.21 **b.** 0.27 **c.** 0.54 **d.** 0.89 **e.** 0.95

Part B: Completion Section

In this section show all work in the spaces provided. Write your final answers on the lines provided**.**

1. (3 points) A table of values for a linear function is given.

x	*y*
–8	10
–6	7
–4	4
–2	1
0	–2
2	–5
4	–8
6	–11
8	–14

a. What is the slope of the line?

_____

b. Write an equation for the line.

_____

2. (5 points) Every consecutive day Syd cleans her room her parents give her pennies according to the following plan.

Day	# of pennies
1	2
2	4
3	8
4	16
5	32
6	64
7	128
8	256
9	512
10	1024

a. If this pattern were to continue, how much money (in dollars and cents) would Syd earn on day 13?

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b. Which of the following functions could represent the number of pennies Syd's parents gave her on day t? Circle all that apply.

i. $A(t) = 2t$ *ii.* $A(t) = 2t^2$ *iii.* $A(t) = 2^t$

c. How many days would it take for Syd to accumulate at least $250.00?

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3. (4 points) The French Club currently has 58 members. Suppose that the membership grows by 10 people each month The German Club currently has 48 members. Suppose that the membership grows by 25% each month. This information is organized in the table below.

a. Fill in the table below for month 3.

Month	**German Club**	**French Club**
0	48	58
1	60	68
2	75	78
3		

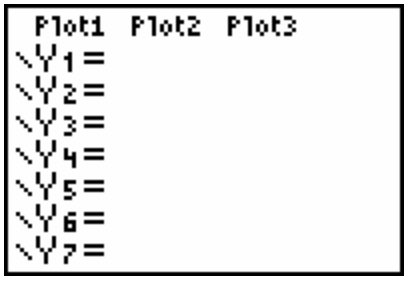
b. Pick either the German Club or the French Club and write an equation for the number of members, M, in that club after t months.

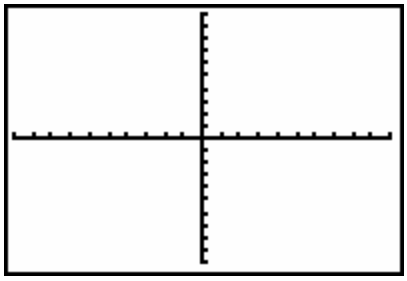
4. A supermarket sells bottles of Coke and Pepsi.
One shopper buys 4 Cokes and 2 Pepsis, and pays $7.40.
Another shopper buys 1 Coke and 3 Pepsis, and pays $4.85.
What are the selling prices for Coke and Pepsi?

Write word descriptions of the two variables in this problem.

Write a system of two equations.

Graph and solve using your calculator.





Check your solution

Final answer (full sentence