MM Algebra
Ms. Peng/ Mr. Villegas

Name _____
Date:_____

Aim: How do we solve word problems using Exponential Functions? (Feb 12)

1) William invested $600 in a savings account at a 1.6% annual interest rate. He made no deposits or withdrawals on the account for 2 years. The interest was compounded annually.

a) Determine ***the initial count (a)***, ***the rate (r)***, and ***growth or decay factor (b)***.

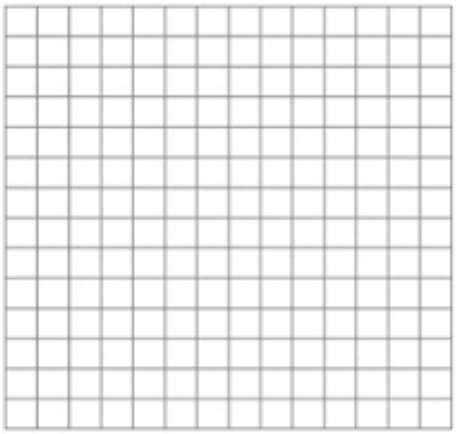
a =_____ r = _____ b = (1 ± r) = _____

b) Write a function that can be used to determine the balance in the account after t years.

c) Find to the nearest cent, the balance in the account after 2 years.

d) Graph the function and estimate the number of years (t) would take William to double his investment.

t	
0	
1	
2	
3	
4	
5	



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2) The country of Benin in West Africa has a population of 9.05 million people. The population is growing at a rate of 3.1% each year.

a) Determine ***the initial count (a)***, ***the rate (r)***, and ***growth or decay factor (b)***.

a =_____ r = _____ b = (1 ± r) = _____

b) Write a function that can be used to determine the population x years from now.

c) Find to the nearest whole number, the population of Benin 7 years from now.

3) Mario's car depreciates in value and can be defined by the function $V = 15{,}000(0.81)^t$.
Ashely's car depreciates in value too. Her car's depreciation can be defined by $V = 15{,}000(0.9)^{2t}$.

a) Calculate the value for Mario's and Ashely's cars after 6 years.

DAY	**Mario's Car Value** $V = 15{,}000(0.81)^t$.	**Ashely's Car Value** $V = 15{,}000(0.9)^{2t}$
1		
2		
3		
4		
5		
6		

b) Based on the depreciation from both functions, explain the relationship between the two functions.

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4) A car was purchased for $25,000. Research shows that the car has an average yearly depreciation rate of 18.5%.

a) Determine ***the initial count (a)***, ***the rate (r)***, and ***growth or decay factor (b)***.

a =_____ **r = _____** **b = (1 ± r) = _____**

b) Create a function that will determine the value, V(t), of the car t years after purchase.

c) Determine, to the nearest cent, how much the car will depreciate from years 3 to year 4.