MM Algebra
Ms. Peng/ Mr. Villegas

Name _____
Date: _____

Aim: How do we solve word problems using Exponential Functions? (Feb 11)

1)

Jacob and Jessica are studying the spread of dandelions. Jacob discovers that the growth over t weeks can be defined by the function $f(t) = (8) \cdot 2^t$. Jessica finds that the growth function over t weeks is $g(t) = 2^{t+3}$. Calculate the number of dandelions that Jacob and Jessica will each have after 5 weeks. Based on the growth from both functions, explain the relationship between $f(t)$ and $g(t)$.

t	$f(t) = (8) \cdot 2^t$
0	
1	
2	
3	
4	
5	

t	$g(t) = 2^{t+3}$
0	
1	
2	
3	
4	
5	

---

2)

Nora inherited a savings account that was started by her grandmother 25 years ago. This scenario is modeled by the function $A(t) = 5000(1.013)^{t+25}$, where $A(t)$ represents the value of the account, in dollars, t years after the inheritance. Which function below is equivalent to $A(t)$?

Years After Inheritance	Account Balance ($)
1	
2	
3	
4	
5	

What would be the account balance after: a) 3 years? b) 5 years?

3) The equation V(t) = 9,000 (0.85) represents the value of a motorcycle t years after it was purchased.

a) What is the original price of the motorcycle?

b) What percent is the price of the motorcycle depreciating annually?

c) What would be the value of a motorcycle 6 years after it was purchased?

d) Graph the function. Estimate the number of years that the motorcycle is worth 40% of the original price.

---

4)

The Ebola virus has an infection rate of 11% per day as compared to the SARS virus, which has a rate of 4% per day. If there were one case of Ebola and 30 cases of SARS initially reported to authorities and cases are reported each day, which statement is true?

1) At day 10 and day 53 there are more Ebola cases.
2) At day 10 and day 53 there are more SARS cases.
3) At day 10 there are more SARS cases, but at day 53 there are more Ebola cases.
4) At day 10 there are more Ebola cases, but at day 53 there are more SARS cases.

DAY	**Ebola** **a = ____ r =_____ b = _____** **Function: _____**	**SARS** **a = ____ r =_____ b = _____** **Function: _____**
10		
53		