Name\_\_\_\_\_

Practice SLO Assessment 2017

Date\_\_\_\_\_

## YOU MUST SHOW ALL YOUR WORK TO RECEIVE YOUR CREDIT!!

Below is the rubric that will be used to grade this assessment.

0	1	2	3
No attempt was made	Answer was given	Problem was set up	Problem was set up
induc	shown	error was made in	correctly. When
		solving <b>OR</b> no	asked for the
		explanation was	explanation given
		given or was	was complete and
		incorrect	accurate

### 1. F.IF.8b

When evaluating the function  $f(x) = 5 \cdot 3^{x+2} - 6$  for any real number x, what must be true about the value of f(x)? Please explain your answer.

# 2.\_\_\_

### F.IF.8b

Which of the following equations represent exponential decay?



**3.** Explain the difference between each graph. Give an example of a function that will produce a similar graph.



4. The equation  $4000 = 1500 \left(2^{\frac{t}{24}}\right)$  can be solved to determine the time, *t*, in years, that it will take for the population of a village to be 4000 people.

#### Part A:

Write an expression for *t* involving logarithms that can be used to determine the number of years it will take the village's population to grow to 4000 people, and explain how you determined your answer.

Part B: Evaluate the expression from Part A to the nearest tenth.

5. Sabena invests \$350 in an account that earns 1.4% interest per year compoundedF.LE.4 continuously. How many years will it take the account to have a value of \$500? Round your answer to the nearest tenth.

6.\_\_\_\_ On an island, the deer population has been decreasing by 3% per year (*t*). The current **F.LE.4** population is 962 deer.

Assume that the deer population continues to decrease by 3% per year. Which of the following logarithmic equations best models the decrease from 962 deer to 746 deer?

- A.  $t = \log_{0.03} 0.78$
- B.  $t = \log_{0.78}(-0.03)$
- C.  $t = \log_{0.03} 1.03$
- D.  $t = \log_{0.97} 0.78$

**7.** Give an exact solution for the following equation:  $120 + 2 \cdot 7^x = 22 + 3 \cdot 7^x$ 

**F.BF.5**  
**A.** 
$$x = 2$$
  
**B.**  $x = \frac{\log 98}{7}$   
**C.**  $x = -2$   
**D.**  $x = \frac{\log 98}{\log 7}$ 

8. Solve:  $\log_4(x+3) = 2 - \log_4(x-3)$ . Please explain your answer. **F.BF.5** 

9. Solve for x:  $\log_9(x+6) + \log_9(3x) = \log_9(4x) + \log_9(x+2)$  and explain what the F.BF.5 solution means.

**10.** Solve for *x*:  $\frac{1}{625} = 5^{3x-1}$ **F.BF.5**