Name _____ Date _____ Class_____

LESSON 13-3

The Base *e*

Practice and Problem Solving: A/B

Given the function of the form $g(x) = ae^{x-h} + k$

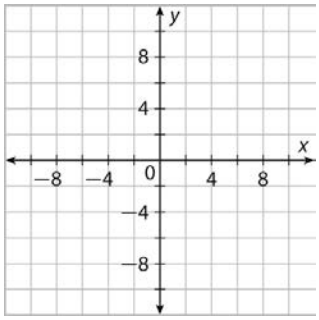
a. Identify *a*, *h*, and *k*.
b. Identify and plot the reference points.
c. Draw the graph.
d. State the domain and range in set notation.

1. $g(x) = 2e^{x} - 4$

a. _____

b. _____

c.



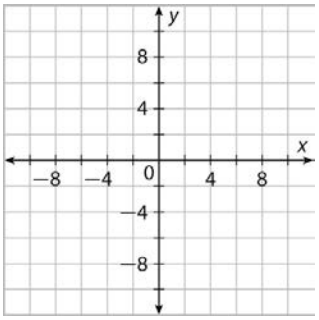
d. _____

2. $g(x) = e^{x-5} + 3$

a. _____

b. _____

c.



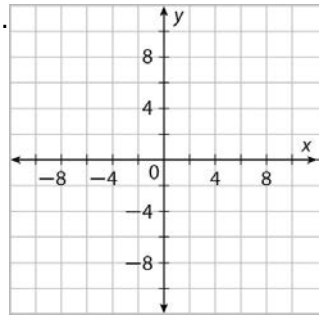
d. _____

3. $g(x) = 0.5e^{x+4} - 1$

a. _____

b. _____

c.



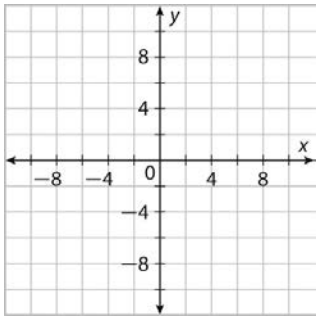
d. _____

4. $g(x) = \frac{1}{5}e^{x-3} - 4$

a. _____

b. _____

c.



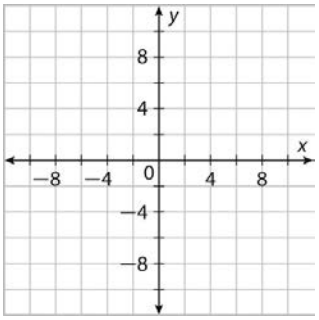
d. _____

5. $g(x) = -4e^{x+2} + 6$

a. _____

b. _____

c.



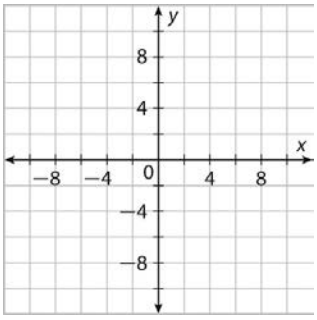
d. _____

6. $g(x) = -0.75e^{x-5} + 2.5$

a. _____

b. _____

c.



d. _____

Name _____ Date _____ Class_____

LESSON 13-3

The Base *e*

Practice and Problem Solving: A/B

Solve.

7. When interest is compounded continuously, the amount *A* in an account after *t* years is found using the formula $A = Pe^{rt}$, where *P* is the amount of principal and *r* is the annual interest rate. Ariana has a choice of two investments that are both compounded continuously. She can invest $12,000 at 5% for 8 years, or she can invest $9000 at 6.5% for 7 years. Which investment will result in the greater amount of interest earned?

_____

8. Use the natural decay function, $N(t) = N_0e^{-kt}$, to find the decay rate and the age of a fossil containing 35% of the original amount of a particular substance, given that the substance has a half-life of 2450 years.

_____

9. When interest is compounded continuously, the amount *A* in an account after *t* years is found using the formula $A = Pe^{rt}$, where *P* is the amount of principal and *r* is the annual interest rate.

   a. Use the formula to compute the balance of an investment that had a principal amount of $4500 and earned 5% interest for 6 years.

   _____

   b. What is the amount of interest earned in the investment?

   _____

10. Use the natural decay function, $N(t) = N_0e^{-kt}$, to find the decay constant, *k*, for a substance that has a half-life of 1000 years.

_____