

Name: _____

Sheet 516: Exponential Functions Review

Compounded Interest formulas: $y = A\left(1 + \frac{r}{n}\right)^{(nt)}$ and, if $n = 1$, $y = A(1 + r)^t$.

1. You deposit \$100 billion in an account that pays 10% annual interest. Find the amount in the account after 20 years if the interest is compounded

(a) annually

(b) monthly

(c) daily

(d) continuously (an infinite number of times per year)

2. Describe how to obtain the graph of $g(x)$ from the graph of $f(x)$.

$g(x) = 10^{x+4} - 12$ and $f(x) = 10^x$

shift up/down (*circle one*) by ____ units

shift left/right (*circle one*) by ____ units.

3. Simplify without using a calculator for e (no decimals):

(a) $e^{7x} \cdot e^{2x}$

(b) $(3e^2)^4$

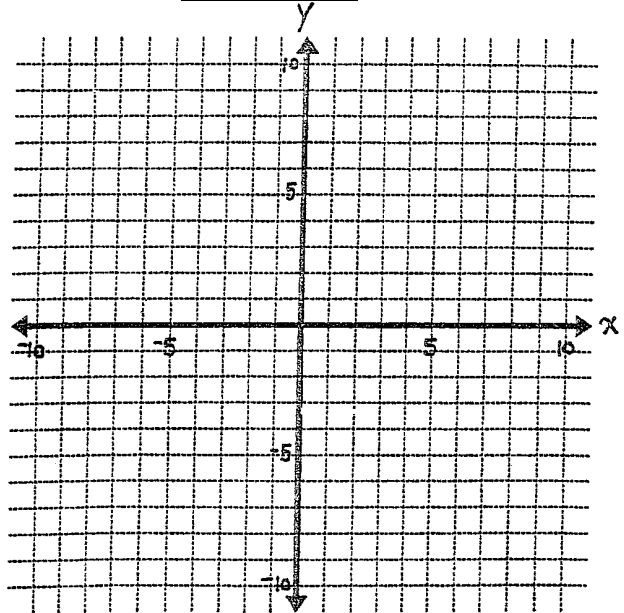
4. Evaluate, rounding to **three decimals**:

(a) e^8

(b) $e^{-1/6}$

5. Complete the table inserting two more (x, y) pairs of your choice. Graph the *whole* function, all the way to the edges of the coordinate system.

x	$y = 4^x$
0	
1	
-1	



6. Graph $y = 2^{x-1} - 3$ above. On the graph, mark asymptotes, x -intercepts and y -intercepts. Write the equations and numbers here.

7. Circle the growth function(s), not the decay function(s).

$y = -e^{-x}$ $y = \left(\frac{12}{11}\right)^{4x}$ $y = 999999 \cdot 9^{-999999x}$ $y = (1/3) \cdot 3^x$ $y = 3^{-x}$

8. Calculate the number $p = \left(1 + \frac{1}{n}\right)^n$ using $n = 10,000,000$. What do you know about p ?