

## Exponential Functions 4 – The Number $e$

### Homework #9

#### \*Power HW Format

Use a calculator to evaluate the expression. Round the result to three decimal places

1)  $e^5$

2)  $e^{-1/3}$

3)  $e^{-1.4}$

4)  $e^{\sqrt{2}}$

Tell whether the function is an example of exponential growth or exponential decay.

5)  $f(x) = 4e^{5x}$

6)  $f(x) = e^{-3x}$

7)  $f(x) = \frac{1}{5}e^{5x}$

8)  $f(x) = \frac{1}{2}e^{-x}$

Simplify the expression in terms of  $e$ .

9)  $(e^4)^{-2}$

10)  $\frac{3e^5}{e}$

11)  $\left(\frac{e}{2}\right)^{-1}$

12)  $(4e^3)^2$

13)  $2e^x \cdot e^{x+3}$

14)  $\sqrt{64e^{4x}}$

Graph the function. State the domain, range, asymptote, and y-intercept. USE GRAPH PAPER!

15)  $f(x) = \frac{1}{2} \cdot e^{2x} - 1$

16)  $f(x) = e^{-3(x+1)} + 2$

17) You deposit \$1200 in an account that pays 5% annual interest. After 10 years, you withdraw the money.

a) Find the balance in the account if the interest was compounded quarterly.

b) Find the balance in the account if the interest was compounded continuously.

c) Which type of compounding yielded the greatest balance?