

Natural Exponential Functions

1. Use the properties of exponents to simplify the expression
(Similar to p.264 #1-4)

$$(a) (e^4)(e^5)$$

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

$$(c) (e^7)^3$$

$$(d) e^{-2}$$

2. Use the properties of exponents to simplify the expression
(Similar to p.265 #1-4)

$$(a) (e^3)^{4/3}$$

$$(b) (e^{1/3})(e^4)$$

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

$$(d) \frac{e^3}{e^{-4}}$$

4. Sketch the graph of the function
(Similar to p.265 #7-18)

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

5. Sketch the graph of the function
(Similar to p.265 #7-18)

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

6. Sketch the graph of the function
(Similar to p.265 #7-18)

$$f(x) = e^x + 2$$

7. Sketch the function. Determine whether the function has any horizontal asymptotes and discuss the continuity of the function
(Similar to p.265 #17-24)

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

8. Complete the table to determine the balance A for P dollars invested at rate r for t years, compounded n times per year

$$P = \$2000, r = 3.2\%, t = 15 \text{ years}$$

(Similar to p.265 #27-30)

n	1	2	4	12	365	Continuous compounding
A						

9. Complete the table to determine the amount of money P that should be invested at rate r to produce a final balance of \$200,000 in t years

$$r = 4.1\%, \text{ compounded continuously}$$

(Similar to p.265 #31-34)

t	1	10	20	30	40	50
P						

10. Complete the table to determine the amount of money P that should be invested at rate r to produce a final balance of \$200,000 in t years

$$r = 2\%, \text{ compounded weekly}$$

(Similar to p.265 #31-34)

t	1	10	20	30	40	50
P						

11. Find the effective rate of interest corresponding to a nominal rate of 8% per year compounded (a) annually, (b) semiannually, (c) quarterly, and (d) monthly

$$\text{Effective rate} = r_{\text{eff}} = \left(1 + \frac{r}{n}\right)^n - 1$$