

Practice 07

Provide an appropriate response.

- 1) Find  $t$  to four decimal places.

$$e^{-t} = 0.06$$

1) \_\_\_\_\_

Solve the problem.

- 2) What will the value of an account (to the nearest cent) be after 8 years if \$100 is invested at 6.0% interest compounded continuously?

2) \_\_\_\_\_

- 3) If \$5000 is invested at 5.25% compounded continuously, what is the amount in the account after 10 years?

3) \_\_\_\_\_

- 4) How long will it take money to double if it is invested at 5.25%, compounded continuously? Round your answer to the nearest tenth.

4) \_\_\_\_\_

Find  $f'(x)$ .

5)  $f(x) = 3e^x - 8x + 2$

5) \_\_\_\_\_

6)  $f(x) = x^8 + 3e^x$

6) \_\_\_\_\_

7)  $f(x) = -7 \ln x - x^5 + 2$

7) \_\_\_\_\_

8)  $f(x) = \ln x^5$

8) \_\_\_\_\_

Find  $\frac{dy}{dx}$  for the indicated function  $y$ .

9)  $y = 3x^2 - \log_3 x$

9) \_\_\_\_\_

10)  $y = 5 + 2x^2 - 7^x$

10) \_\_\_\_\_

11)  $y = 8^x - e^3$

11) \_\_\_\_\_

Find the equation of the line tangent to the graph of  $f$  at the indicated value of  $x$ .

12)  $f(x) = 2e^x$ ;  $x = 0$

12) \_\_\_\_\_

13)  $f(x) = 6e^x - 1$ ;  $x = 0$

13) \_\_\_\_\_

Solve.

- 14) The salvage value  $S$  (in dollars) of a company airplane after  $t$  years is estimated to be given by  $S(t) = 250,000(0.7)^t$ . What is the rate of depreciation (in dollars per year) after 5 years?

14) \_\_\_\_\_

## Answer Key

Testname: PRACTICE07

1) 2.8134

2) \$161.61

3) \$8452.29

4) 13.2 yr

5)  $3e^x - 8$

6)  $8x^7 + 3e^x$

7)  $-\frac{7}{x} - 5x^4$

8)  $\frac{5}{x}$

9)  $6x - \frac{1}{x \ln 3}$

10)  $4x - 7^x \ln 7$

11)  $8^x \ln 8$

12)  $y = 2x + 2$

13)  $y = 6x + 5$

14)  $-\$14,987/\text{yr}$