

3.1 The Constant e and Continuous Compound Interest
 3.2 Derivatives of Exponential and Logarithmic Functions.

Provide an appropriate response.

- 1) Find x to two decimal places. 1) _____
 $x = 7,000e^{0.11}$
 A) 7975.01 B) 8320.50 C) 7813.95 D) 7831.95

- 2) Find t to four decimal places. 2) _____
 $e^{-0.07t} = 0.05$
 A) -66.4815 B) -70.1312 C) 44.321 D) 42.7962

Solve the problem.

- 3) 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? 3) _____
 A) \$849.47 B) \$175.32 C) \$161.61 D) \$159.38

- 4) How long will it take for \$8400 to grow to \$14,600 at an interest rate of 9.4% if the interest is compounded continuously? Round the number of years to the nearest hundredth. 4) _____
 A) 58.81 yr B) 5.88 yr C) 0.06 yr D) 0.59 yr

- 5) Suppose that \$8000 is invested at an interest rate of 5.5% per year, compounded continuously. How long would it take to double the investment? 5) _____
 A) 12.6 yr B) 11.6 yr C) 13.6 yr D) 2 yr

Find $f'(x)$.

- 6) $f(x) = x^8 + 3e^x$ 6) _____
 A) $8x + 3e^x$ B) $8x^7 + 3xe^{x-1}$ C) $8x^7 + e^x$ D) $8x^7 + 3e^x$

- 7) $f(x) = -7 \ln x - x^5 + 2$ 7) _____
 A) $-\frac{7}{x} - 5x$ B) $-\frac{7}{x} - 5x^4$ C) $-\frac{1}{7x} - 5x^4$ D) $\frac{7}{x} - 5x^4$

- 8) $f(x) = \ln x^5$ 8) _____
 A) $5 \ln x^4$ B) $\frac{1}{5x}$ C) $\frac{5}{x}$ D) $\frac{5}{x^4}$

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

- 9) $y = 3x^2 - \log_3 x$ 9) _____
 A) $6x - \frac{1}{3 \ln x}$ B) $6x + \frac{1}{3 \ln x}$ C) $6x - \frac{1}{x \ln 3}$ D) $3x - \frac{1}{x \ln 3}$

- 10) $y = 5 + 2x^2 - 7^x$ 10) _____
 A) $4x - 7^x \ln x$ B) $4x - 7^x \ln 7$ C) $4x - 7 \ln 7$ D) $4x + 7^x \ln 7$

Answer Key

Testname: PRACTICE01

- 1) D
- 2) D
- 3) C
- 4) B
- 5) A
- 6) D
- 7) B
- 8) C
- 9) C
- 10) B