

Provide an appropriate response.

1) Find t to four decimal places.

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

A) 2.6134

B) -2.8134

C) 2.9134

D) 2.8134

1) _____

Solve the problem. Formula: $A = Pe^{rt}$

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

A) \$8442.52

B) \$7625.00

C) \$8452.29

D) \$7420.65

2) _____

Solve the problem.

3) Suppose that \$1000 is invested at an interest rate of 3% per year, compounded continuously. How long would it take to double the investment?

A) 13 yr

B) 10 yr

C) 23 yr

D) 12 yr

3) _____

Find $f'(x)$.

4) $f(x) = 5e^x - 6x + 2$

A) $5e^x - 4$

B) $5e^x - 6$

C) $5xe^{x-1} - 6$

D) $5e^x - 6x$

4) _____

5) $f(x) = 3e^x - 4x^2$

A) $3e^x - 8x$

B) $3xe^{x-1} - 8x^2$

C) $3e^x - 8x^2$

D) $3e^x - 2x$

5) _____

6) $f(x) = -6 \ln x - x^3 + 3$

A) $-\frac{6}{x} - 3x^2$

B) $-\frac{1}{6x} - 3x^2$

C) $-\frac{6}{x} - 3x$

D) $\frac{6}{x} - 3x^2$

6) _____

7) $f(x) = \ln x^6 - 3x^2$

A) $\frac{1}{6x} - 6x$

B) $\frac{6}{x} - 3x$

C) $\frac{6}{x} - 6x$

D) $\frac{6}{x^5} - 6x$

7) _____

8) $f(x) = 7 \log_2 x$

A) $\frac{7}{2 \ln x}$

B) $\frac{1}{x \ln 2}$

C) $\frac{7}{x \ln 2}$

D) $\frac{1}{x^7 \ln 2}$

8) _____

9) $f(x) = 5^x$

A) $5^x \ln 5$

B) $5 \ln 5$

C) $\frac{5^x}{\ln 5}$

D) $5^x \ln x$

9) _____

10) $f(x) = 8^x - e^3$

A) $\frac{8^x}{\ln 8}$

B) $8^x \ln 8 - e^3$

C) $8^x \ln x - e^3$

D) $8^x \ln 8$

10) _____

Find the equation of the line tangent to the graph of f at the indicated value of x . Hint: $y - y_1 = m(x - x_1)$ where $m = f'(x)$

- 11) $f(x) = 2e^x; x = 0$ 11) _____
A) $y = 2x - 2$ B) $y = x + 2$ C) $y = 2x + 2$ D) $y = 2x$

Differentiate.

- 12) Find $f'(t)$ for $f(x) = (2x - 2)(2x^3 - x^2 + 1)$ 12) _____
A) $f'(x) = 4x^3 + 6x^2 - 18x + 2$ B) $f'(x) = 16x^3 - 18x^2 + 4x + 2$
C) $f'(x) = 12x^3 + 18x^2 - 6x + 2$ D) $f'(x) = 16x^3 - 6x^2 + 18x + 2$

- 13) Let f and g be functions that satisfy: $f(0) = 1$, $g(0) = 3$, $f'(0) = 2$, and $g'(0) = 3$. Find $h'(0)$ for $h(x) = f(x)g(x) + 3f(x) + 100$. 13) _____
A) 15 B) 6 C) 20 D) 2

- 14) Find $f'(t)$ for $f(x) = \frac{x}{4x - 6}$ 14) _____
A) $-\frac{6x}{(4x - 6)^2}$ B) $-\frac{6}{4x - 6}$ C) $\frac{8x - 6}{(4x - 6)^2}$ D) $-\frac{6}{(4x - 6)^2}$

- 15) Find y' for $y = \frac{x^2}{9 - 2x}$ 15) _____
A) $\frac{-6x^2 + 18x}{(9 - 2x)^2}$ B) $\frac{9x}{(9 - 2x)^2}$
C) $\frac{-2x^2 + 18x}{(9 - 2x)^2}$ D) $\frac{2x^3 - 4x^2 + 18x}{(9 - 2x)^2}$

Provide an appropriate response.

- 16) Find $f'(x)$ for $f(x) = (4x^2 + 3x)^2$. 16) _____
A) $f'(x) = 64x^3 + 72x^2 + 18x$ B) $f'(x) = 32x^3 + 36x^2 + 9x$
C) $f'(x) = 32x^3 + 36x^2 + 18x$ D) $f'(x) = 64x^3 + 36x^2 + 18x$

Find the elasticity of the demand function as a function of p .

- 17) $x = D(p) = 600 - p$ 17) _____
A) $E(p) = \frac{p}{p - 600}$ B) $E(p) = p(600 - p)$
C) $E(p) = \frac{p}{600 - p}$ D) $E(p) = \frac{1}{600 - p}$

Use the price-demand equation to determine whether demand is elastic, is inelastic, or has unit elasticity at the indicated values of p .

- 18) $x = f(p) = 1000 - p^3; p = 5$ 18) _____
A) Elastic B) Inelastic C) Unit elasticity

Answer Key

Testname: REVIEW CHAP 3

- 1) D
- 2) C
- 3) C
- 4) B
- 5) A
- 6) A
- 7) C
- 8) C
- 9) A
- 10) D
- 11) C
- 12) B
- 13) A
- 14) D
- 15) C
- 16) A
- 17) C
- 18) B