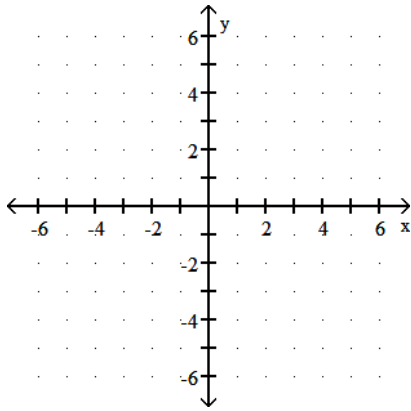


Graph the function.

- 1) Use the graph of $f(x) = 5^x$ to obtain the graph of $g(x) = 5^x + 1$.



Use the compound interest formulas $A = P\left(1 + \frac{r}{n}\right)^{nt}$ and $A = Pe^{rt}$ to solve.

- 2) Find the accumulated value of an investment of \$1020 at 6% compounded annually for 19 years.
A) \$2911.43 B) \$2182.80 C) \$3086.11 D) \$2121.60

2) _____

Write the equation in its equivalent exponential form.

3) $\log_3 9 = x$

A) $9^x = 3$

B) $3^x = 9$

C) $x^3 = 9$

D) $9^3 = x$

3) _____

Write the equation in its equivalent logarithmic form.

4) $2^3 = x$

A) $\log_2 x = 3$

B) $\log_x 2 = 3$

C) $\log_2 3 = x$

D) $\log_3 x = 2$

4) _____

Evaluate the expression without using a calculator.

5) $\log_5 5^{20}$

A) 5

B) $\log_5 20$

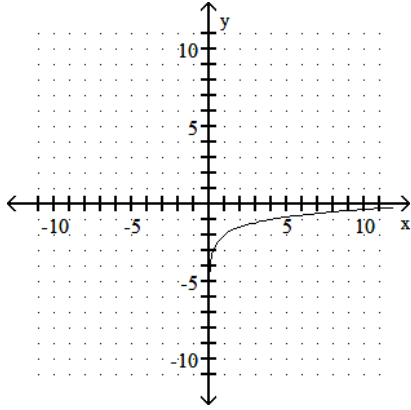
C) 25

D) 20

5) _____

The graph of a logarithmic function is given. Select the function for the graph from the options.

6)



A) $f(x) = \log_4(x - 2)$

B) $f(x) = \log_4 x - 2$

C) $f(x) = \log_4(x + 2)$

D) $f(x) = \log_4 x$

6) _____

Find the domain of the logarithmic function.

7) $f(x) = \ln(5 - x)$

A) $(-\infty, 5)$

B) $(-\infty, 5)$ or $(5, \infty)$

C) $(-5, \infty)$

D) $(-\infty, 0)$

7) _____

Use properties of logarithms to expand the logarithmic expression as much as possible.

8) $\log(10,000x)$

A) $4 + \log x$

B) $4x$

C) $4\log x$

D) $40 + \log x$

8) _____

Use properties of logarithms to expand the logarithmic expression as much as possible.

9) $\log_w \left(\frac{9x}{4} \right)$

A) $\log_w 9 + \log_w x - \log_w 4$

B) $\log_w 9 + \log_w x + \log_w 4$

C) $\log_w 5x$

D) $\log_w 9x - \log_w 4$

9) _____

10) $\log_a \left(\frac{x^4 \sqrt[3]{x+5}}{(x-2)^2} \right)$

A) $\log_a x^4 + \log_a (x+5)^{-3} - \log_a (x-2)^2$

B) $\log_a x^4 + \log_a (x+5)^{1/3} - \log_a (x-2)^2$

C) $4 \log_a x + \frac{1}{3} \log_a (x+5) - 2 \log_a (x-2)$

D) $4 \log_a x - 3 \log_a (x+5) - 2 \log_a (x-2)$

10) _____

Use properties of logarithms to condense the logarithmic expression. Write the expression as a single logarithm.

11) $\frac{1}{2} \log_9 x + \log_9 y$

A) $\log_9 y \sqrt{x}$

B) $\log_9 \sqrt{xy}$

C) $\log_9 \frac{\sqrt{x}}{y}$

D) $\log_9 \sqrt{\frac{x}{y}}$

11) _____

12) $\frac{1}{4}(\log_8 x + \log_8 y) - 6 \log_8 (x + 1)$ 12) _____

A) $\log_8 \frac{\sqrt[4]{xy}}{6(x+1)}$ B) $\log_8 \frac{\sqrt[4]{x} + \sqrt[4]{y}}{(x+1)^6}$ C) $\log_8 \frac{\sqrt[4]{x+y}}{(x+1)^6}$ D) $\log_8 \frac{\sqrt[4]{xy}}{(x+1)^6}$

Use common logarithms or natural logarithms and a calculator to evaluate to four decimal places

13) $\log_{20} 371$ 13) _____

A) 1.9749 B) 3.8704 C) 1.2683 D) 0.5064

Solve the equation by expressing each side as a power of the same base and then equating exponents.

14) $3^{(3x - 6)} = 27$ 14) _____

A) $\left\{\frac{1}{9}\right\}$ B) $\{-3\}$ C) $\{9\}$ D) $\{3\}$

Solve the exponential equation. Express the solution set in terms of natural logarithms.

15) $5^{x+7} = 2$ 15) _____

A) $\left\{\frac{\ln 2}{\ln 5} - 7\right\}$ B) $\{\ln 2 - \ln 5 - \ln 7\}$ C) $\left\{\frac{\ln 5}{\ln 2} + 7\right\}$

Solve the exponential equation. Use a calculator to obtain a decimal approximation, correct to two decimal places, for the solution.

16) $2^{x+8} = 5$ 16) _____

A) -0.51 B) 8.43 C) 1.33 D) -5.68

Solve the logarithmic equation.

17) $8 + 3 \ln x = 6$ 17) _____

A) $\left\{\frac{-2}{3 \ln 1}\right\}$ B) $\{e^{-2/3}\}$ C) $\left\{\ln - \frac{2}{3}\right\}$ D) $\left\{\frac{e^{-2}}{3}\right\}$

18) $\log_3 (x + 2) - \log_3 x = 2$ 18) _____

A) $\{4\}$ B) $\left\{\frac{2}{9}\right\}$ C) $\{3\}$ D) $\left\{\frac{1}{4}\right\}$

19) $\ln 4 + \ln (x - 1) = 0$ 19) _____

A) $\{1\}$ B) $\left\{\frac{1}{4}\right\}$ C) $\left\{\frac{5}{4}\right\}$ D) $\left\{\frac{4}{5}\right\}$

20) $\log_2 (x - 1) = 1 + \log_2 (x - 4)$ 20) _____

A) $\{-7\}$ B) $\{3\}$ C) $\{-3\}$ D) $\{7\}$

Solve.

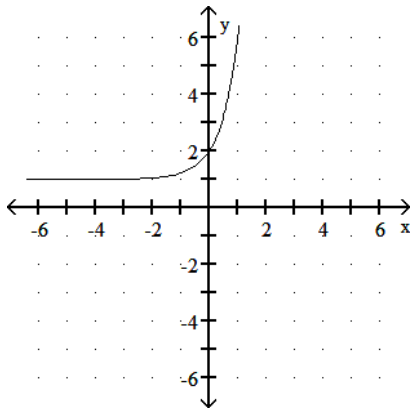
21) The function $A = A_0 e^{-0.01386x}$ models the amount in pounds of a particular radioactive material stored in a concrete vault, where x is the number of years since the material was put into the vault. If 800 pounds of the material are placed in the vault, how much time will need to pass for only 459 pounds to remain? 21) _____

A) 45 years B) 50 years C) 40 years D) 80 years

Answer Key

Testname: REVIEW03_MAC1105

1)



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