

CHAPTER 3 REVIEW

Name _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the logistic function that satisfies the given conditions.

1) Initial value = 13, limit to growth = 39, passing through (1, 26) 1) _____

2) Initial height = 169, limit to growth = 845, passing through (2, 585) 2) _____

Solve the equation by changing it to exponential form.

3) $\log_3 x = -4$ 3) _____

4) $\log x = -3$ 4) _____

Rewrite the expression as a sum or difference or multiple of logarithms.

5) $\log_2 9x$ 5) _____

6) $\log_{19} \left(\frac{\sqrt[6]{13}}{q^2 p} \right)$ 6) _____

7) $\log_3 \left(\frac{x^5 y^7}{8} \right)$ 7) _____

Use the product, quotient, and power rules of logarithms to rewrite the expression as a single logarithm. Assume that all variables represent positive real numbers.

8) $\frac{1}{7} \ln x$ 8) _____

9) $4 \log_5 (2x - 1) + 5 \log_5 (6x + 1)$ 9) _____

Use the change of base rule to find the logarithm to four decimal places.

10) $\log_8 0.989$ 10) _____

11) $\log_3 2$ 11) _____

Write the expression using only the indicated logarithms.

12) $\log_5 x$ using natural logarithms 12) _____

Use a calculator to find an approximate solution to the equation.

13) $2(3x - 2) = 17$ 13) _____

14) $3 \ln (x + 2.8) = 4.8$ 14) _____

Find the domain of the function.

15) $f(x) = \log(x + 8)$

15) _____

16) $f(x) = \log_{10}(x^2 - 7x + 12)$

16) _____

Solve the equation.

17) $\log(x + 3) = 1 - \log x$

17) _____

18) $\log(4 + x) - \log(x - 4) = \log 5$

18) _____

19) $\log_4(2x + 5) - \log_4(x - 2) = 1$

19) _____

20) $\log_6 x + \log_6(x - 3) = 2$

20) _____