

MAC 1105
Sullivan
Chapter 6 Practice for Exam (V2)
Sections 6.5 to 6.8

Name: _____
Date: _____
Section: _____

Solve each equation:

1. $4^{1-2x} = 32$

2. $25^{2x} = 5^{x^2-12}$

3. $\log_x 64 = -3$

4. $\log_3 \sqrt{x-2} = 3$

5. $3e^{2x} = 5$

6. $5^{x+2} = 3^{4x-2}$

7. $\log_6(x+3) + \log_6(x+4) = 1$

8. $\log x = 4.5$

9. A child's grandparents purchase a \$16,000 bond that matures in 16 years to be used for her education. The bond pays 6% interest compounded semiannually. How much will the bond be worth at maturity?

10. The bones of a prehistoric man found in the desert of New Mexico contain approximately 5% of the original amount of carbon-14. If the half life of carbon-14 is 5600 years, approximately how long ago did the man die?

11. If Kenya has a population of 20,000,000 people and doubling time of 16 years and if the growth continues at the same rate, find the population in 22 years.

Write each expression as a single logarithm

12. $4\log_2 x - 2\log_2 y - \frac{1}{2}\log_2 z$

13. $\ln(x+2) - 7\ln(x) + 3\ln(x+7)$

Evaluate each expression (without using a calculator).

14. $\log_2 \frac{1}{8}$

15. $\log_3 81$

16. $\log_2 2^x$

17. $e^{3\ln x}$

Evaluate each expression using a calculator. Round your answers to the nearest thousandth.

18. $\log(5.972)$

19. $\log(-4.875)$

20. $\ln(125)$

21. $\log_6 50$

22. $\frac{\log 16}{\log 8}$