

Practice 8-2**Properties of Exponential Functions**

Evaluate each expression to four decimal places.

1. e^2

2. $e^{-2.5}$

3. $e^{\frac{1}{3}}$

4. $e^{\sqrt{2}}$

Find the amount in a continuously compounded account for the given conditions.

5. principal: \$5000
annual interest rate: 6.9%
time: 30 yr

6. principal: \$20,000
annual interest rate: 3.75%
time: 2 yr

7. Hg-197 is used in kidney scans. It has a half-life of 64.128 h. Write the exponential decay function for a 12-mg sample. Find the amount remaining after 72 h.

8. Sr-85 is used in bone scans. It has a half-life of 64.9 days. Write the exponential decay function for an 8-mg sample. Find the amount remaining after 100 days.

9. I-123 is used in thyroid scans. It has a half-life of 13.2 h. Write the exponential decay function for a 45-mg sample. Find the amount remaining after 5 h.

Without graphing, determine whether each equation represents exponential growth or exponential decay.

10. $y = \frac{5}{4}(0.11)^x$

11. $A(t) = 1000(1.075)^t$

12. $s(t) = 2.4(0.5)^t$

13. Suppose you invest \$5000 at an annual interest of 6.9%, compounded monthly.

- How much will you have in the account after 10 years?
- Determine how much more you would have if the interest were compounded continuously.

14. How long would it take to double your principal at an annual interest rate of 7% compounded continuously?

Graph each exponential function.

15. $y = 2^x$

16. $y = 2^{x+1}$

17. $y = -(2)^{x+1}$

18. $y = 5(0.12)^x$

19. $y = 5^x$

20. $y = -0.1(5)^x$

21. $y = 5^{-x}$

22. $y = -0.1(5)^{-x}$

23. $y = \left(\frac{1}{3}\right)^x$

24. $y = 5\left(\frac{1}{3}\right)^x$

25. $y = -5\left(\frac{1}{3}\right)^x$

26. $y = 2(2)^{x+2}$