6.1 & 6.2 Practice A

In Exercises 1-15, tell whether the function represents *exponential growth* or *exponential decay*. State the percent of growth or decay.

1. $y = 5^x$

2. $y = 3^x$

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

7. $y = \left(\frac{3}{2}\right)^x$

8. $y = (1.6)^x$

9. $y = (0.5)^x$

10. $y = 8^x$

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

12. $y = \left(\frac{2}{3}\right)^x$

13. $y = (2.5)^x$

14. $y = (0.4)^x$

15. $y = (0.1)^x$

16. The value of a rare coin y (in dollars) can be approximated by the model $y = 0.25(1.06)^t$, where t is the number of years since the coin was minted.

a. Tell whether the model represents exponential growth or exponential decay.

b. Identify the annual percent increase or decrease in the value of the coin.

c. What was the original value of the coin?

d. Estimate when the value of the coin will be \$0.60.

17. You deposit \$3000 into a bank account that pays 1.25% annual interest, compounded semi-annually. How much interest does the account earn after 4 years?

In Exercises 18 - 23, tell whether the function represents *exponential growth* or *exponential decay*. State the percent of growth or decay.

18. $y = e^{4x}$

19. $y = e^{-x}$

20. $y = 4e^{-2x}$

21. $y = 2e^{3x}$

22. $y = 0.5e^{-2x}$

23. $y = 0.4e^{0.5x}$

24. You invest $5000 in an account to save for college.

a. Option 1 pays 4% annual interest compounded monthly. What would be the balance in the account after 2 years?

b. Option 2 pays 4% annual interest compounded continuously. What would be the balance in the account after 2 years?

c. What is the difference between the two options after 10 years?

d. How would your answer to part (c) change if you invested $50,000?

Determine if the exponential function is growth or decay. Also, determine if it is continuous growth, the percent change, and the principle.

25. $P(x) = 7.8e^{.07x}$

26. $T(x) = 2400(0.8)^x$

27. $f(x) = 4000(1.07)^x$

28. $E(x) = 850(0.94)^x$

29. $g(x) = 250(1.1)^x$

30. $M(x) = 2.3e^{-0.2x}$