

Practice 7-1

..... Example Exercises

Example 1

Graph each function. Identify each function as modeling either exponential growth or exponential decay.

1. $y = 6(1.13)^x$

2. $y = 0.2(0.3)^x$

3. $y = 3.1(1.7)^x$

4. $y = \frac{2}{3}(0.7)^x$

5. $y = 0.17\left(\frac{2}{3}\right)^x$

6. $y = 6(4)^x$

7. $y = 0.5\left(\frac{3}{7}\right)^x$

8. $y = 1.24\left(\frac{5}{4}\right)^x$

Example 2

9. The number of bacteria in a certain culture increases by 10% every hour until available space is depleted. Only 100 bacteria are present to start the growth.
- What is the growth factor of the bacteria?
 - Write an equation that models the growth of the bacteria when space is unlimited.
 - Predict the number of bacteria present after 24 h of growth.
10. A deposit d in one account will earn 7%, compounded monthly. The formula to find the value V of that deposit in m months is
- $$V = d\left(1 + \frac{0.07}{12}\right)^m.$$
- What is the value of a \$5000 deposit after 5 yr?
 - Find how many months it would take for the deposit to double. (Hint: Try different values for m .)
 - Using the formula above for a guide, write a formula to find the value of a \$4000 deposit that earns 9%, compounded monthly.

Example 3

11. Suppose you have \$15,000 in equipment for your business. You expect the equipment will be worth 10% less each year.
- Your friend says the equipment will be worth nothing in 10 yr, since that would be 100% depreciation. Explain why that is incorrect.
 - Write an equation for this depreciation.
 - Find how much the equipment will be worth in 10 yr.