

13-1 Practice

Exploring Exponential Models

Graph each function.

1. $y = (0.3)^x$

2. $y = 3^x$

3. $y = 2\left(\frac{1}{5}\right)^x$

4. $y = \frac{1}{2}(3)^x$

5. $s(t) = 2.5^t$

6. $f(x) = \frac{1}{2}(5)^x$

Without graphing, determine whether the function represents exponential growth or exponential decay. Then find the y-intercept.

7. $y = 0.99\left(\frac{1}{3}\right)^x$

8. $y = 20(1.75)^x$

9. $y = 185\left(\frac{5}{4}\right)^x$

10. $f(x) = \frac{2}{3}\left(\frac{1}{2}\right)^x$

11. $f(x) = 0.25(1.05)^x$

12. $y = \frac{1}{5}\left(\frac{6}{5}\right)^x$

13. Suppose you deposit \$1500 in a savings account that pays interest at an annual rate of 6%. No money is added or withdrawn from the account.

- How much will be in the account after 5 years?
- How much will be in the account after 20 years?
- How many years will it take for the account to contain \$2500?
- How many years will it take for the account to contain \$4000?

Write an exponential function to model each situation. Find each amount after the specified time.

14. A population of 1,236,000 grows 1.3% per year for 10 years.

15. A population of 752,000 decreases 1.4% per year for 18 years.

16. A new car that sells for \$18,000 depreciates 25% each year for 4 years.