

PROBLEM SET 8-1
(Exploring Exponential Models)

Graph each function.

1. $y = 6^x$

2. $f(x) = 2(3)^x$

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

4. $y = 81\left(\frac{1}{3}\right)^x$

Write an exponential function $y = ab^x$ for a graph that includes the given points.

5. (4, 8), (6, 32)

6. (2, 18), (5, 60.75)

7. (-3, 24), (-2, 12)

8. (0, 24), (3, $\frac{8}{9}$)

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

9. $y = 12\left(\frac{17}{10}\right)^x$

10. $y = 8\left(\frac{1}{8}\right)^x$

11. $y = 4\left(\frac{5}{6}\right)^x$

12. $y = \frac{1}{10}\left(\frac{4}{3}\right)^x$

For each function, find the annual percent increase or decrease.

13. $y = 1298(1.63)^x$

14. $f(x) = 2(0.65)^x$

Below is data on two cars based on the expected decrease in value after 5 years:

Value of Car 1		Value of Car 2	
New	After 5 Years	New	After 5 Years
\$30,000	\$5,000	\$15,000	\$5,000

15. Write an exponential model to determine each car's depreciation

16. Determine how much each car will be worth after 10 years.