Name Key Date

LESSON 7.2

Practice

For use with pages 486–491

Tell whether the function represents *exponential growth* or *exponential decay*.

1. $f(x) = \frac{5}{3}\left(\frac{4}{5}\right)^x$ decay ↑ $\frac{4}{5} < 1$

2. $f(x) = \frac{3}{5}\left(\frac{5}{4}\right)^x$ growth ↑ $\frac{5}{4} > 1$ ∴

3. $f(x) = 5(2)^{-x} = 5\left(\frac{1}{2}\right)^x$ ← $\frac{1}{2} < 1$ decay ↑ neg. exponent

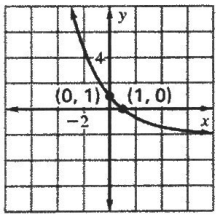
Match the function with its graph.

4. $f(x) = \left(\frac{2}{3}\right)^{x+2}$ B

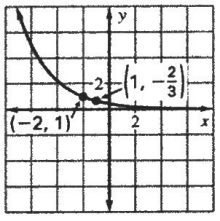
5. $f(x) = -\left(\frac{1}{2}\right)^x + 3$ C

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

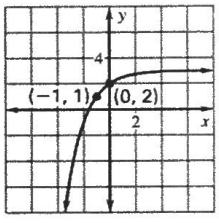
A.



B.

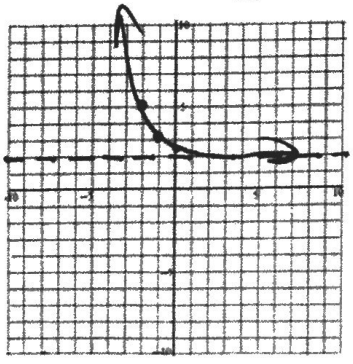


C.

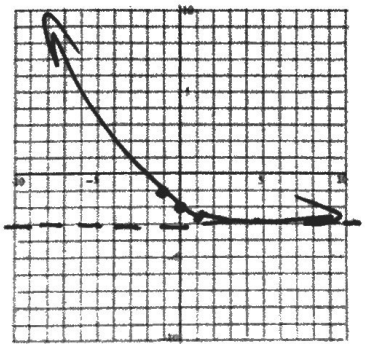


Graph the function. State the domain and range.

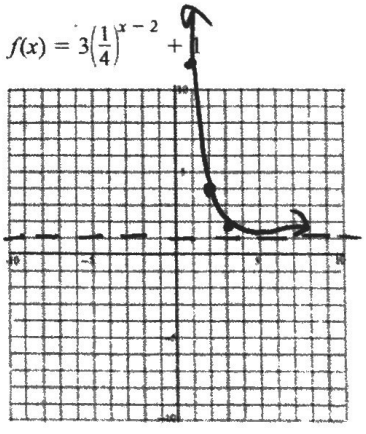
7. $f(x) = \left(\frac{1}{3}\right)^{x+1} + 2$



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



9. $f(x) = 3\left(\frac{1}{4}\right)^{x-2} +$ [illegible]

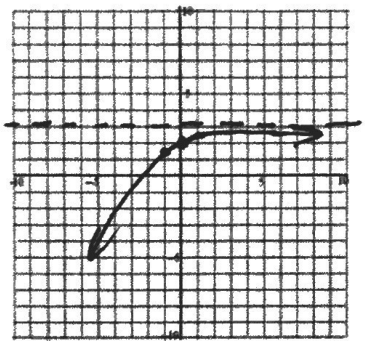


LESSON 7.2

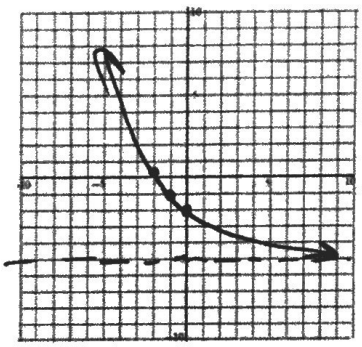
Practice *continued*

For use with pages 486–491

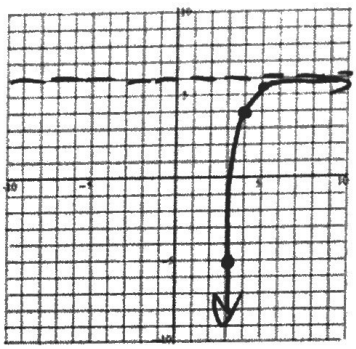
10. $f(x) = -\left(\frac{2}{3}\right)^x + 3$



11. $f(x) = 4\left(\frac{3}{4}\right)^{x+1} - 5$



12. $f(x) = -2\left(\frac{1}{6}\right)^{x-4} + 6$



In Exercises 13–15, use the following information.

Depreciation You buy a new car for $22,500. The value of the car decreases by 25% each year.

13. Write an exponential decay model giving the car's value V (in dollars) after t years.

$V = 22500(1-0.25)^t$ or $V = 22500(0.75)^t$

$A = P(1-r)^t$

14. What is the value of the car after three years?

$V = 22500(0.75)^3 = \$9492.19$