Do you UNDERSTAND?

6. Vocabulary How can you tell if an exponential function models growth or decay?

Identify the initial amount a and the growth factor b in each exponential function.

9. $g(x) = 14 \cdot 2^x$

10. $y = 150 \cdot 1.0894^x$

11. $y = 25{,}600 \cdot 1.01^x$

12. $f(t) = 1.4^t$

13. College Enrollment The number of students enrolled at a college is 15,000 and grows 4% each year.
   a. The initial amount a is ■.
   b. The percent rate of change is 4%, so the growth factor b is $1 + $ ■ $= $ ■.
   c. To find the number of students enrolled after one year, you calculate $15{,}000 \cdot$ ■.
   d. Complete the equation $y = $ ■ $\cdot$ ■■ to find the number of students enrolled after x years.
   e. Use your equation to predict the number of students enrolled after 25 yr.

Find the balance in each account after the given period.

15. $4000 principal earning 6% compounded annually, after 5 yr

16. $12,000 principal earning 4.8% compounded annually, after 7 yr

17. $500 principal earning 4% compounded quarterly, after 6 yr

Identify the initial amount *a* and the decay factor *b* in each exponential function.

23. $y = 5 \cdot 0.5^x$　　　**24.** $f(x) = 10 \cdot 0.1^x$　　**25.** $g(x) = 100\left(\frac{2}{3}\right)^x$　　**26.** $y = 0.1 \cdot 0.9^x$

27. Population　The population of a city is 45,000 and decreases 2% each year. If the trend continues, what will the population be after 15 yr?

State whether the equation represents *exponential growth*, *exponential decay*, or *neither*.
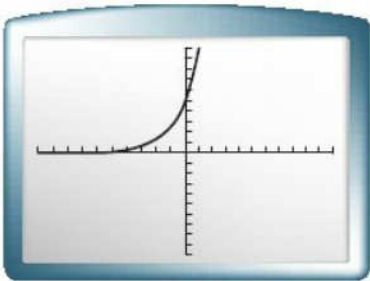
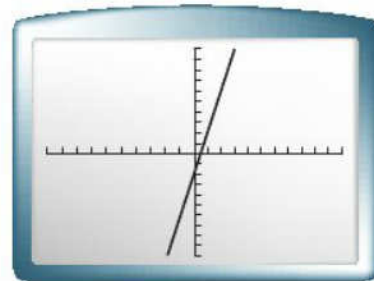**28.** $y = 0.93 \cdot 2^x$　　**29.** $y = 2 \cdot 0.68^x$　　**30.** $y = 68 \cdot x^2$　　**31.** $y = 68 \cdot 0.2^x$

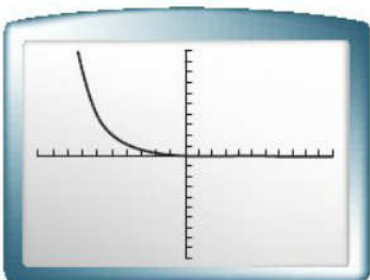**State whether each graph shows an *exponential growth function*, an *exponential decay function*, or *neither*.**

36.

37.

38.

39.