WRITING FUNCTIONS Write a rule for the function.

4.

x	−2	−1	0	1	2
y	1	2	4	8	16

5.

x	−2	−1	0	1	2
y	5	25	125	625	3125

6.

x	−2	−1	0	1	2
y	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	1	2

7.

x	−2	−1	0	1	2
y	$\frac{1}{81}$	$\frac{1}{27}$	$\frac{1}{9}$	$\frac{1}{3}$	1

8. WRITING Given a table of values, describe how can you tell if the table represents a linear function or an exponential function.

GRAPHING FUNCTIONS Graph the function and identify its domain and range.

9. $y = 4^x$ **10.** $y = 7^x$ **11.** $y = 8^x$ **12.** $y = 9^x$

13. $y = (1.5)^x$ **14.** $y = (2.5)^x$ **15.** $y = (1.2)^x$ **16.** $y = (4.3)^x$

17. $y = \left(\frac{4}{3}\right)^x$ **18.** $y = \left(\frac{7}{2}\right)^x$ **19.** $y = \left(\frac{5}{3}\right)^x$ **20.** $y = \left(\frac{5}{4}\right)^x$

21. ERROR ANALYSIS The price P (in dollars) of a pound of flour was $.27 in 1999. The price has increased by about 2% each year. Let t be the number of years since 1999. *Describe* and correct the error in finding the price of a pound of flour in 2002.

$P = a(1 + r)^t$
$= 0.27(1 + 2)^3 = 0.27(3)^3 = 7.29$

In 2002 the price of a pound of flour was $7.29.

COMPARING GRAPHS OF FUNCTIONS Graph the function. Compare the graph with the graph of $y = 3^x$.

22. $y = 2 \cdot 3^x$ **23.** $y = 4 \cdot 3^x$ **24.** $y = \frac{1}{4} \cdot 3^x$ **25.** $y = \frac{2}{3} \cdot 3^x$

26. $y = 0.5 \cdot 3^x$ **27.** $y = 2.5 \cdot 3^x$ **28.** $y = -2 \cdot 3^x$ **29.** $y = -4 \cdot 3^x$

30. $y = -\frac{1}{4} \cdot 3^x$ **31.** $y = -\frac{2}{3} \cdot 3^x$ **32.** $y = -0.5 \cdot 3^x$ **33.** $y = -2.5 \cdot 3^x$
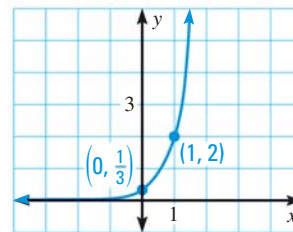
34. TAKS REASONING The graph of which function is shown?

A $f(x) = 6^x$ **B** $f(x) = \left(\frac{1}{3}\right)^x$

C $f(x) = \frac{1}{3} \cdot 6^x$ **D** $f(x) = 6 \cdot \left(\frac{1}{3}\right)^x$

35. WRITING If a population triples each year, what is the population's growth rate (as a percent)? *Explain.*

36. CHALLENGE Write a linear function and an exponential function whose graphs pass through the points (0, 2) and (1, 6).

37. CHALLENGE Compare the graph of the function $f(x) = 2^{x+2}$ with the graph of the function $g(x) = 4 \cdot 2^x$. Use properties of exponents to explain your observations.

○ = **WORKED-OUT SOLUTIONS** on p. WS1

= **TAKS PRACTICE AND REASONING**

◆ = **MULTIPLE REPRESENTATIONS**