

p.450 #1-4, 7, 10-16, 18-20, 23, 30, 32, 40-42

Evaluate each function for the given value.

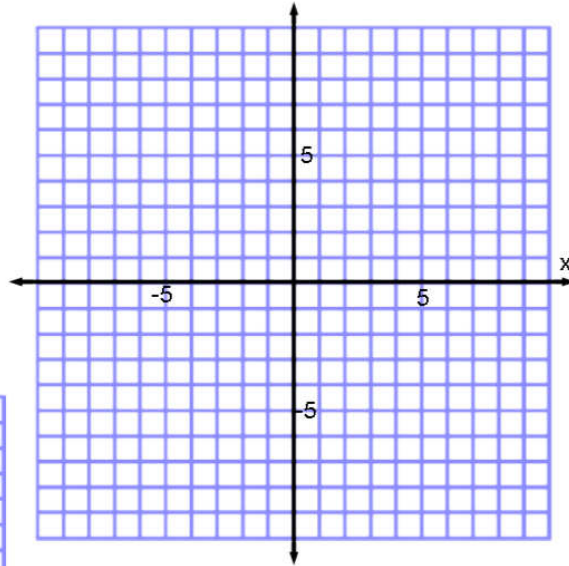
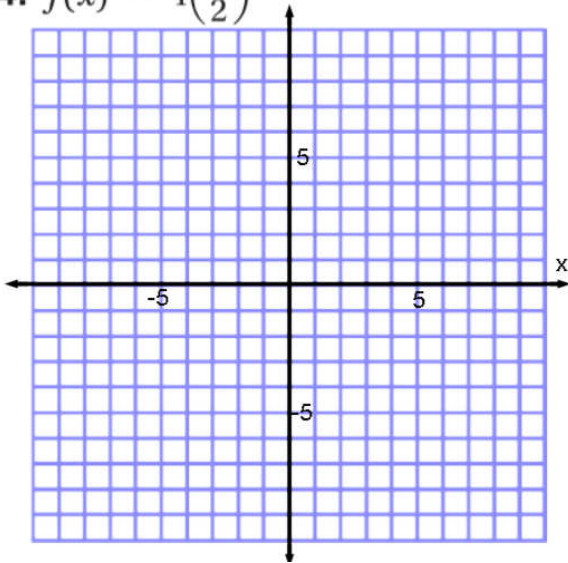
1. $f(x) = 6 \cdot 2^x$ for $x = 3$

2. $g(w) = 45 \cdot 3^w$ for $w = -2$

Graph each function.

3. $y = 3^x$

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



7. **Error Analysis** A student evaluated the function $f(x) = 3 \cdot 4^x$ for $x = -1$ as shown at the right. Describe and correct the student's mistake.

$$\begin{aligned} f(-1) &= 3 \cdot 4^{-1} \\ &= 12^{-1} \\ &= \frac{1}{12} \end{aligned}$$

Determine whether each table or rule represents an exponential function.

Explain why or why not.

10. $y = 4 \cdot 5^x$

11. $y = 12 \cdot x^2$

12. $y = -5 \cdot 0.25^x$

13. $y = 7x + 3$

Evaluate each function for the given value.

14. $f(x) = 6^x$ for $x = 2$

15. $g(t) = 2 \cdot 0.4^t$ for $t = -2$

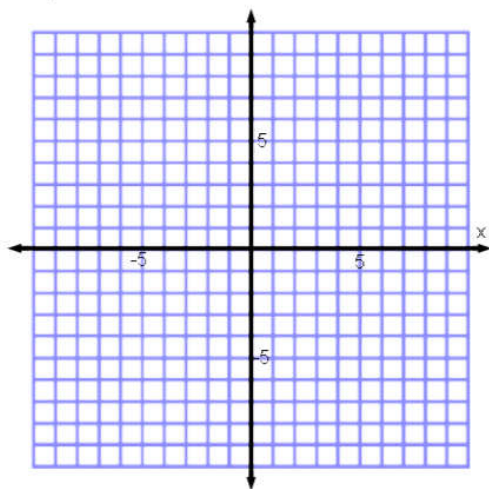
16. $y = 20 \cdot 0.5^x$ for $x = 3$

18. **Finance** An investment of \$5000 doubles in value every decade. The function $f(x) = 5000 \cdot 2^x$, where x is the number of decades, models the growth of the value of the investment. How much is the investment worth after 30 yr?

19. **Wildlife Management** A population of 75 foxes in a wildlife preserve quadruples in size every 15 yr. The function $y = 75 \cdot 4^x$, where x is the number of 15-yr periods, models the population growth. How many foxes will there be after 45 yr?

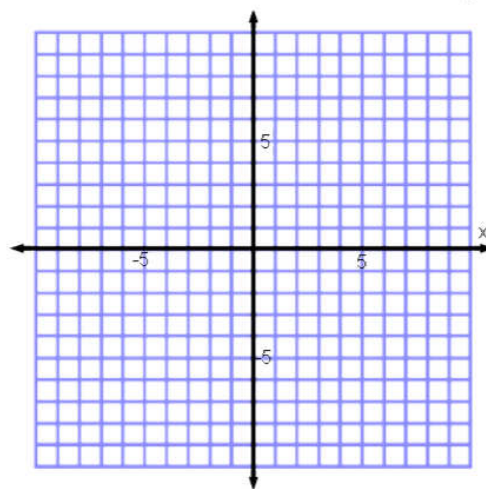
Graph each exponential function.

20. $y = 4^x$



See F

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



Evaluate each function over the domain $\{-2, -1, 0, 1, 2, 3\}$. As the values of the domain increase, do the values of the range *increase* or *decrease*?

30. $f(x) = 5^x$

32. $h(x) = 0.1^x$

Which function has the greater value for the given value of x ?

40. $y = 4^x$ or $y = x^4$ for $x = 2$

41. $f(x) = 10 \cdot 2^x$ or $f(x) = 200 \cdot x^2$ for $x = 7$

42. $y = 3^x$ or $y = x^3$ for $x = 5$