

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the equation for x by first rewriting both sides as powers of the same base.

1)  $4^{(9 - 3x)} = 64$  1) \_\_\_\_\_

2)  $64^x - 1 = 8^{4x}$  2) \_\_\_\_\_

3)  $\left(\frac{1}{3}\right)^{6x + 3} = 9^{x - 4}$  3) \_\_\_\_\_

Find the exponential function of the given form that contains the given point(s).

4) Form:  $f(x) = c \cdot a^x$   
Points: (0, 4) and (4, 324) 4) \_\_\_\_\_

Graph the function.

5)  $f(x) = 2^x$  5) \_\_\_\_\_

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

7)  $f(x) = 3^{(x - 2)}$  7) \_\_\_\_\_

8)  $f(x) = \left(\frac{1}{3}\right)^x + 3$  8) \_\_\_\_\_

9)  $f(x) = 4^{(x - 2)} - 2$  9) \_\_\_\_\_

10)  $y = -2 \cdot 4^x - 1 + 3$  10) \_\_\_\_\_

Write the equation of the graph in its final position.

11) The graph of  $y = 2^x$  is translated 9 units to the right and then 6 units upward. 11) \_\_\_\_\_

Solve the problem.

12) The number of dislocated electric impulses per cubic inch in a transformer when lightning strikes is given by  $d(x) = 9800(3)^x$ , where x is the time in milliseconds of the lightning strike. Find the number of dislocated impulses at  $x = 0$  and  $x = 2$ . 12) \_\_\_\_\_

13) The number of bacteria growing in an incubation culture increases with time according to  $n(t) = 6000(3)^t$ , where t is time in days. After how many days will the number of bacteria in the culture be 486,000? 13) \_\_\_\_\_

Write the equation of the graph in its final position.

14) If \$1000 is invested at a rate of 8% per year compounded quarterly, what is the principal after one year? 14) \_\_\_\_\_