Name: _____ Math 1 Test Chapter 5, Practice Test

1. Re-write each radical expression in exponential form:

a. $\sqrt{4^3}$ = _____ b. $\sqrt[3]{4^5}$ = _____

Solve each equation. Show all work.

2. $(3^x)(3^5) = 3^8$

3. $3^{x+4} = 81^{x-1}$

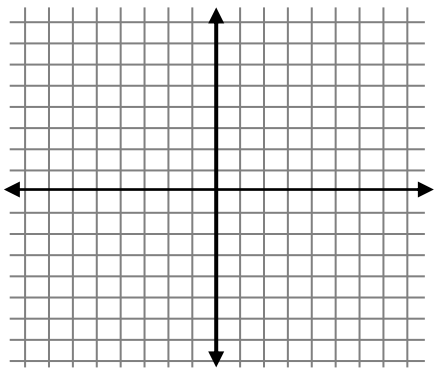
4. Given the function $f(x) = 3(2)^x$, answer each of the following:

a. Find the y-intercept: _____ b. Is the function increasing or decreasing? _____

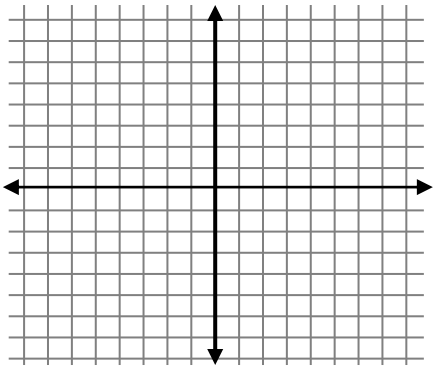
c. Find the domain: _____ d. Find the range: _____

Sketch a graph of each function showing the y-intercept, one other point, and any asymptotes:

5. $f(x) = \left(\frac{1}{5}\right)^x$



6. $f(x) = 2(3)^x$



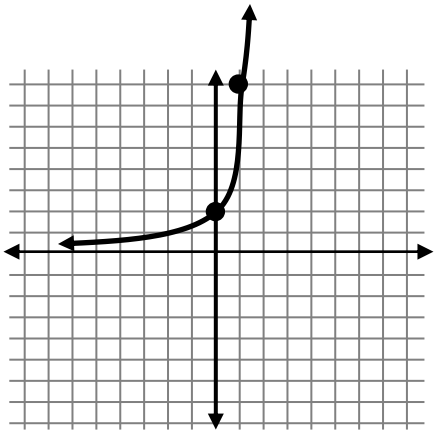
Find an exponential function for the function shown:

7.

x	0	1	2	3
y	36	12	4	$\frac{4}{3}$

$f(x) =$ _____

8.



$f(x) =$ _____

9. A house valued at $240,000 decreases in value by 8% each year.
   a. Set up an equation for the value of the house after x years.

   b. Find the value of the house after 6 years

10. You deposit $3000 in a savings account that earns 12% interest, compounded quarterly.
   a. Set up an equation for the amount in the account after x years.

   b. Find the amount of money in the account after 8 years.

11. Determine if each sequence is arithmetic, geometric, or neither:

   a. 8, 24, 72, 216 . . . _____

   b. 2, 8, 16, 26 . . . _____

   c. -16, -8, 0, 8 _____

Find an explicit and recursive formula for each geometric sequence:

12. 5, 15, 45, 135, . . .

Explicit: $a_n =$ _____

Recursive: $a_1 =$ _____

$a_n =$ _____

13. 600, 120, 24, $\frac{24}{5}$, . . .

Explicit: $a_n =$ _____

Recursive: $a_1 =$ _____

$a_n =$ _____

14. Given a geometric sequence with the

Explicit formula $a_n = (4)\left(\frac{1}{2}\right)^{n-1}$

Find the recursive formula:

Recursive: $a_1 =$ _____

$a_n =$ _____

15. Given an arithmetic sequence with the

recursive formula $a_1 = 8$ and $a_n = a_{n-1} \cdot 6$

Find the explicit formula:

Explicit: $a_n =$ _____

Describe how the function $g(x)$ has been shifted from the function $f(x)$

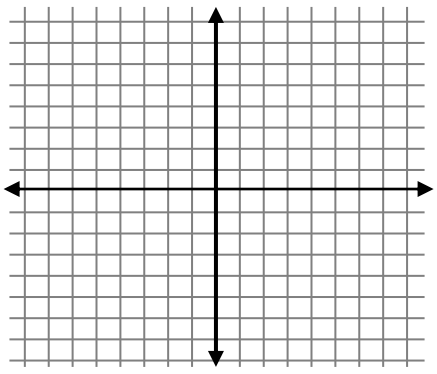
16. $g(x) = f(x) + 5$

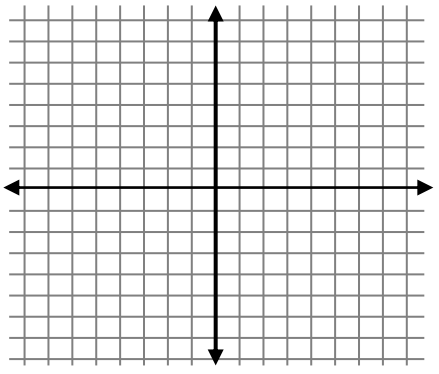
17. $g(x) = f(x + 4) - 2$

Sketch a graph of each function showing one point and any asymptotes:

18. $f(x) = (2)^{x+4} - 1$

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





20. Given the function $f(x) = (5)^x$

The function $g(x)$ is created by shifting $f(x)$ left 2 units and down 1 unit.

Find each of the following:

a. $g(x)$ = _____

b. The y-intercept of $g(x)$ = _____

c. The range of $g(x)$ = _____