

Name: _____

Math 1 Test Chapter 5, Practice Test

Simplify each exponent expression

1. $x^2 \cdot x^7$

2. $8x^5 \cdot 4x^3$

3. $\frac{x^7}{x^5}$

4. $(x^6)^3$

5. $\frac{1}{x^{-8}}$

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

a. $\sqrt{4^3} = \underline{\hspace{2cm}}$

b. $\sqrt[5]{6} = \underline{\hspace{2cm}}$

Solve each equation. Show all work.

7. $(3^x)(3^5) = 3^8$

8. $(4^{2x-3})(4^{x-1}) = 4^{11}$

9. $3^{x+4} = 81^{x-1}$

10. $\left(\frac{1}{8}\right)^{x+4} = 2^{2x+3}$

11. Given the function: $f(x) = 8\left(\frac{1}{4}\right)^x$

a. Find the y-intercept: _____

b. Is the function increasing or decreasing? _____

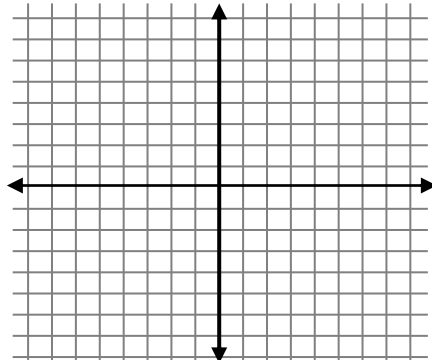
12. Given the function: $f(x) = 4(2)^x$

a. Find the domain: _____

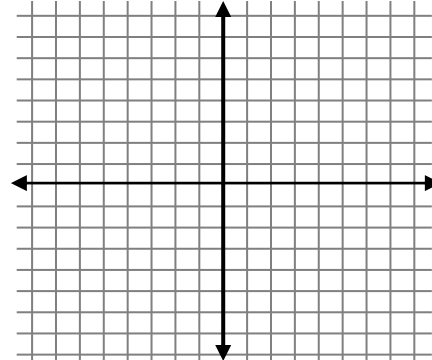
b. Find the range: _____

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

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



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



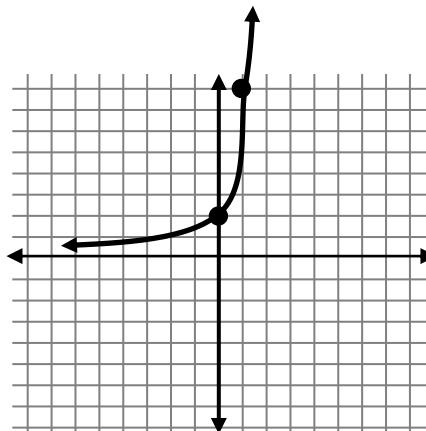
Find an exponential function for the function shown:

15.

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

$f(x) =$ _____

11.



$f(x) =$ _____

17. Set up an exponential equation in the form $y = a(b)^x$ for each situation:

a. Initial value = 700 with a growth rate of 14%

b. Initial value = 3000 with a decay rate of 7%

18. 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

19. 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.

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

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

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

c. -16, -8, 0, 8

21. Given the geometric sequence: $\frac{3}{8}, \frac{3}{4}, \frac{3}{2}, 3, \dots$

a. Find an explicit formula for the sequence

b. Use the formula to find a_9

Find an explicit and recursive formula for each geometric sequence:

22. 5, 15, 45, 135, ...

Explicit: $a_n =$ _____

Recursive: $a_1 =$ _____

$a_n =$ _____

23. 600, 120, 24, $\frac{24}{5}, \dots$

Explicit: $a_n =$ _____

Recursive: $a_1 =$ _____

$a_n =$ _____

24. Given a geometric sequence with the

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

Find the recursive formula:

Recursive: $a_1 =$ _____

$a_n =$ _____

25. Given an arithmetic sequence with the

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

Find the explicit formula:

Explicit: $a_n =$ _____