

## Why Don't Mountains Get Cold in the Winter?

3	4	2	1		7	2	6	8
5	10	11	7	9	6	12	5	

Answer each question. For each number question, put the letter of the correct answer in the slot(s) above.

1. Simplify  $(3x^2)(4x^5)$

A.  $12x^{10}$

Y.  $12x^7$

J.  $34x^{10}$

Q.  $7x^7$

2. Simplify  $(3x^2y)^4$

K.  $12x^2y^4$

R.  $12x^8y^4$

P.  $81x^6y^5$

E.  $81x^8y^4$

3. Write  $\sqrt[3]{5}$  using rational exponents

C.  $5^3$

T.  $5^{\frac{1}{3}}$

I.  $5^{\frac{2}{3}}$

M.  $\sqrt[5]{3}$

4. Determine the type of function:  $y = \frac{1}{2}(5)^x$

H. Exponential Growth

Z. Exponential Decay

N. Linear

V. Quadratic

5. For the graph of  $f(x) = 7^x$  what is the y-intercept?

S. 1

E. 7

U.  $\frac{1}{7}$

C. 0

6. A population grows at 6% per year. What is the growth factor?

A. 1.06

R. 1.6

Z. 6

E. .06

7. A car has an original value of \$18,000 and depreciates at 4% per year. Write an equation that models the value of the car.

L.  $y = 18,000(1.4)^x$

U.  $18,000(1.04)^x$

W.  $18,000(.96)^x$

Y.  $18,000(-.04)^x$

8. Write an exponential function for the set of points

x	0	1	2	3
f(x)	48	12	3	$\frac{3}{4}$

G.  $f(x) = 48(4)^x$

R.  $f(x) = 48\left(\frac{1}{4}\right)^x$

B.  $f(x) = 48\left(\frac{3}{4}\right)^x$

9. The explicit formula for a geometric sequence is  $a_n = 39\left(\frac{1}{3}\right)^{n-1}$ . What is the recursive formula for the sequence?

U.  $a_n = 13^{n-1}$

G.  $a_n = a_{n-1}(3)$  where  $a_1 = 39$

C.  $a_n = a_{n-1}\left(\frac{1}{3}\right)$  where  $a_1 = 39$

10. Write the explicit formula for the geometric sequence: 12, 24, 48, 96, ...

A.  $a_n = 2(12)^{n-1}$

M.  $a_n = 2 \cdot 12(n-1)$

N.  $a_n = 12(2)^{n-1}$

P.  $a_n = 24^{n-1}$

11. Determine if the sequence is arithmetic, geometric, or neither: 8, 9, 11, 14, 18, ...

O. Neither

S. Arithmetic

L. Geometric

12. How does the graph of the function  $f(x) = 5^x - 3$  differ from the graph of  $f(x) = 5^x$

B. It is moved up 3 units

P. It is moved down 3 units

F. It is moved 3 units to the right