Laws of Exponents

A. Choose the Correct Answer:

1. According to the law of exponents, $a^m \times a^n$ equals:

a) a^{m+n} b) a^{m-n}

c) a^{mn} d) $a^{m/n}$

2. The value of $(2^3)^4$ is:

a) 2^{12} b) 2^7

c) 2^{16} d) 6^3

3. According to the law of exponents, $(a^m)^n$ =

a) a^{m-n} b) a^{m+n}

c) a^{mn} d) $(a^n)^m$

4. Which of the following is correct for $(ab)^n$?

a) $a^n + b^n$ b) $a^n b$

c) $a^n b^n$ d) $(ab)^{n+1}$

5. a^0 is equal to:

a) 0 b) 1

c) a d) –1

B. Write the Missing Terms to Complete the Sentences:

1. $a^m \times a^n = a^{?}$

2. $(a^m)^n = a^{?}$

3. $(ab)^m = a^m \times$ _____

4. a^0 = _____

5. $a^m \div a^n = a^{?}$

C. Figure out the answers to these questions:

1. Simplify $3^2 \times 3^4$

2. Find the value of $(5^3)^2$

3. Simplify $\left(\frac{2}{5}\right)^3 \times \left(\frac{5}{2}\right)^3$

4. Evaluate $(4^2)^3$

5. Simplify $\frac{7^3}{7^2}$

D. Mark each sentence with a True (✓) or False (✗):

1. $a^m \times a^n = a^{m+n}$. _____
2. $(a^m)^n = a^{m+n}$. _____
3. $a^0 = 0$. _____
4. $(ab)^m = a^m b^m$. _____
5. $a^m \div a^n = a^{m-n}$. _____

E. Challenge yourself with these questions:

1. Find the value of $(6^3)^2$
2. Simplify $\frac{2^5}{2^3}$
3. Find the value of $\left(\frac{3}{4}\right)^2 \times \left(\frac{4}{3}\right)^2$
4. Simplify $(5^2)^3 \div 5^3$
5. Simplify $(x^3)^2 \times (x^2)^3$