

CHAPTER-1 | Number System

QUIZ
PART-10

1. What is the result of $a^m \times a^n$?

- A. a^{m+n}
 B. a^{m-n}
 C. $a^{m \times n}$
 D. $a^{m \div n}$ (A)

Explanation: According to the laws of exponents, when multiplying two powers with the same base, the exponents are added: $a^m \times a^n = a^{m+n}$.

2. What is the result of $(a^m)^n$?

- A. a^{mn}
 B. a^{m+n}
 C. $a^{m/n}$
 D. a^{m-n} (A)

Explanation: According to the laws of exponents, $(a^m)^n = a^{mn}$, where the exponents are multiplied.

3. Which of the following is the correct form of a^{-m} ?

- A. $\frac{1}{a^m}$
 B. $\frac{a^m}{1}$
 C. $\frac{1}{a^m}$
 D. None of the above (A)

Explanation: According to the laws of exponents, $a^{-m} = \frac{1}{a^m}$, which shows that a negative exponent represents the reciprocal of the base raised to the positive exponent.

4. What is the value of $\frac{a^m}{a^n}$?

- A. a^{m+n}
 B. a^{m-n}
 C. $a^{m \times n}$
 D. $a^{m/n}$ (B)

Explanation: According to the laws of exponents, when dividing two powers with the same base,

subtract the exponents: $\frac{a^m}{a^n} = a^{m-n}$.

5. Simplify $(5^3) \times (5^4)$.

- A. 5^7
 B. 5^{12}
 C. 5^8
 D. 5^5 (A)

Explanation: Using the law $a^m \times a^n = a^{m+n}$ $(5^3) \times (5^4) = 5^{3+4} = 5^7$.

6. Which of the following represents $\frac{a^m}{a^n}$?

- A. a^{m-n}
 B. a^{m+n}
 C. $a^{m \times n}$
 D. $a^{m/n}$ (A)

Explanation: The law $\frac{a^m}{a^n} = a^{m-n}$ shows that when dividing powers with the same base, the exponents are subtracted.

7. What is the simplified form of $(2^2) \times (3^2)$?

- A. 6^2
 B. 5^2
 C. 5×5
 D. 6 (A)

Explanation: $(2^2) \times (3^2) = 4 \times 9 = 6^2$.

8. Which law of exponents is applied in $(a^m) \times (a^n) = a^{m+n}$?

- A. Product Law
 B. Power Law
 C. Quotient Law
 D. Zero Exponent Law (A)

Explanation: This is the **Product Law** of exponents, which states that when multiplying powers with the same base, the exponents are added.

9. Which of the following is the simplified form of $\frac{1}{a^{-n}}$?

- A. a^n
 B. a^{-n}
 C. $\frac{1}{a^n}$
 D. $a^{1/n}$ (A)

Explanation: $\frac{1}{a^{-n}} = a^n$, according to the law of negative exponents.

10. What is the value of 3^0 ?

- A. 0
 B. 1
 C. 3
 D. Undefined (B)

Explanation: Any non-zero number raised to the power of 0 is equal to 1, so $3^0 = 1$.