

## Multiplying Powers

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Explain and apply the exponent laws for powers with integral exponents.

$$(x^m)(x^n) = x^{m+n}$$

## Multiplying Powers

When multiplying powers that have the **same base**, add the exponents and keep the base the same.

$$\begin{aligned} & (2^3)(2^5) \\ &= (2)(2)(2)(2)(2)(2)(2) \\ &= 2^8 \end{aligned}$$



$$\begin{aligned} & x^2 x^3 \\ &= (x)(x)(x)(x)(x) \\ &= x^5 \end{aligned}$$



Examples:

$$\begin{aligned} x^2 x^{-1} &= x^{2+(-1)} \\ &= x^1 \\ &= x \end{aligned} \quad \begin{aligned} (5)^2 (5)^3 &= (5)^{2+3} \\ &= (5)^5 \end{aligned} \quad \begin{aligned} (x^2 y^3)(x^3 y) &= x^2 y^3 x^3 y \\ &= x^{2+3} y^{3+1} \\ &= x^5 y^4 \end{aligned}$$

We can also express this rule as follows:

$$(x^m)(x^n) = x^{m+n}$$

$$5^3 \times 5^4 = 5^n$$

Q.1

What is the value of n in the above equation?

A 1	C 0
B 12	D 7

## Multiplying Powers

$$10^6 \times 10 = 10^n$$

Q.1

What is the value of n in the above equation?

A  C

B  D

$$y^2 \times y^n = y^6$$

Q.1

What is the value of n in the above equation?

A  C

B  D

Simplify the following expression.

$$(x^2y^3)(xyz)$$

## Attachments

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