



Algebraic Expressions and Identities Ex 6.3 Q31

Answer :

To multiply algebraic expressions, we use commutative and associative laws along with the laws of indices, i.e., $a^m \times a^n = a^{m+n}$.

We have:

$$\begin{aligned} & \left(\frac{4}{9} abc^3 \right) \times \left(-\frac{27}{5} a^3 b^2 \right) \times (-8b^3 c) \\ &= \left\{ \left(\frac{4}{9} \right) \times \left(-\frac{27}{5} \right) \times (-8) \right\} \times (a \times a^3) \times (b \times b^2 \times b^3) \times (c^3 \times c) \\ &= \left\{ \left(\frac{4}{9} \right) \times \left(-\frac{27}{5} \right) \times (-8) \right\} \times (a^{1+3}) \times (b^{1+2+3}) \times (c^{3+1}) \\ &= \frac{96}{5} a^4 b^6 c^4 \end{aligned}$$

Thus, the answer is $\frac{96}{5} a^4 b^6 c^4$.

\therefore The expression doesn't consist of the variables x and y .

\therefore The result cannot be verified for $x = 1$ and $y = 2$

Algebraic Expressions and Identities Ex 6.3 Q32

Answer :

To multiply algebraic expressions, we use commutative and associative laws along with the laws of indices, i.e., $a^m \times a^n = a^{m+n}$.

We have:

$$\begin{aligned} & (2xy) \times \left(\frac{x^2 y}{4} \right) \times (x^2) \times (y^2) \\ &= \left(2 \times \frac{1}{4} \right) \times (x \times x^2 \times x^2) \times (y \times y \times y^2) \\ &= \left(2 \times \frac{1}{4} \right) \times (x^{1+2+2}) \times (y^{1+1+2}) \\ &= \frac{1}{2} x^5 y^4 \end{aligned}$$

$$\therefore (2xy) \times \left(\frac{x^2 y}{4} \right) \times (x^2) \times (y^2) = \frac{1}{2} x^5 y^4$$

Substituting $x = 2$ and $y = -1$ in the result, we get:

$$\begin{aligned}
 & \frac{1}{2} x^5 y^4 \\
 &= \frac{1}{2} (2)^5 (-1)^4 \\
 &= \frac{1}{2} \times 32 \times 1 \\
 &= 16
 \end{aligned}$$

Thus, the answer is 16.

Algebraic Expressions and Identities Ex 6.3 Q33

Answer :

To multiply algebraic expressions, we use commutative and associative laws along with the laws of indices, i.e., $a^m \times a^n = a^{m+n}$.

We have:

$$\begin{aligned}
 & \left(\frac{3}{5} x^2 y \right) \times \left(-\frac{15}{4} xy^2 \right) \times \left(\frac{7}{9} x^2 y^2 \right) \\
 &= \left\{ \frac{3}{5} \times \left(-\frac{15}{4} \right) \times \frac{7}{9} \right\} \times (x^2 \times x \times x^2) \times (y \times y^2 \times y^2) \\
 &= \left\{ \frac{3}{5} \times \left(-\frac{15}{4} \right) \times \frac{7}{9} \right\} \times (x^{2+1+2}) \times (y^{1+2+2}) \\
 &= -\frac{7}{4} x^5 y^5
 \end{aligned}$$

$$\therefore \left(\frac{3}{5} x^2 y \right) \times \left(-\frac{15}{4} xy^2 \right) \times \left(\frac{7}{9} x^2 y^2 \right) = -\frac{7}{4} x^5 y^5.$$

Substituting $x = 2$ and $y = -1$ in the result, we get:

$$\begin{aligned}
 & -\frac{7}{4} x^5 y^5 \\
 &= -\frac{7}{4} (2)^5 (-1)^5 \\
 &= \left(-\frac{7}{4} \right) \times 32 \times (-1) \\
 &= 56
 \end{aligned}$$

Thus, the answer is 56.

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