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:

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

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

$\because$ 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:

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

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

Substituting *x* = 2 and *y* = −1 in the result, we get:

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

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:

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

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

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

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

Thus, the answer is 56.

*********** END **********