Algebraic Expressions and Identities Ex 6.3 Q20

Answer :

We have to find the product of the expression in order to express it as a monomial.

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

We have:

$(5x^4) \times (x^2)^3 \times (2x)^2$

$= (5x^4) \times (x^6) \times (2^2 \times x^2)$

$= (5 \times 2^2) \times (x^4 \times x^6 \times x^2)$

$= (5 \times 2^2) \times (x^{4+6+2})$

$= 20x^{12}$

$\therefore (5x^4) \times (x^2)^3 \times (2x)^2 = 20x^{12}$

Substituting $x = 1$ in LHS, we get:

$$\mathbf{LHS} = (5x^4) \times (x^2)^3 \times (2x)^2$$

$$= (5 \times 1^4) \times (1^2)^3 \times (2 \times 1)^2$$

$$= (5 \times 1) \times (1^6) \times (2)^2$$

$$= 5 \times 1 \times 4$$

$$= 20$$

Put $x = 1$ in RHS, we get:

$$\mathbf{RHS} = 20x^{12}$$

$$= 20 \times (1)^{12}$$

$$= 20 \times 1$$

$$= 20$$

$\because$ LHS = RHS for $x = 1$; therefore, the result is correct.

Thus, the answer is $20x^{12}$.

Algebraic Expressions and Identities Ex 6.3 Q21

Answer :

We have to find the product of the expression in order to express it as a monomial.

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

We have:

$(x^2)^3 \times (2x) \times (-4x) \times 5$
$= (x^6) \times (2x) \times (-4x) \times 5$
$= \{2 \times (-4) \times 5\} \times (x^6 \times x \times x)$
$= \{2 \times (-4) \times 5\} \times (x^{6+1+1})$
$= -40x^8$

$\therefore (x^2)^3 \times (2x) \times (-4x) \times 5 = -40x^8$

Substituting $x = 1$ in LHS, we get:

$\text{LHS} = (x^2)^3 \times (2x) \times (-4x) \times 5$
$= (1^2)^3 \times (2 \times 1) \times (-4 \times 1) \times 5$

$= 1^6 \times 2 \times (-4) \times 5$
$= 1 \times 2 \times (-4) \times 5$
$= -40$

Putting $x = 1$ in RHS, we get:

$\text{RHS} = -40x^8$
$= -40(1)^8$
$= -40 \times 1$
$= -40$

$\because$ LHS = RHS for $x = 1$; therefore, the result is correct

Thus, the answer is $-40x^8$.

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