Algebraic Expressions and Identities Ex 6.3 Q13

Answer :

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

We have:

$$\left(\frac{7}{9}ab^2\right) \times \left(\frac{15}{7}ac^2b\right) \times \left(-\frac{3}{5}a^2c\right)$$
$$= \left\{\frac{7}{9} \times \frac{15}{7} \times \left(-\frac{3}{5}\right)\right\} \times (a \times a \times a^2) \times \left(b^2 \times b\right) \times (c^2 \times c)$$
$$= \left\{\frac{\cancel{7}^{1}}{\cancel{9}_{3}} \times \frac{\cancel{15}^{\cancel{3}^{1}}}{\cancel{7}} \times \left(-\frac{\cancel{3}^{1}}{\cancel{5}}\right)\right\} \times (a \times a \times a^2) \times \left(b^2 \times b\right) \times (c^2 \times c)$$
$$= \left\{\frac{\cancel{7}^{1}}{\cancel{9}_{\cancel{3}}} \times \frac{\cancel{15}^{\cancel{3}^{1}}}{\cancel{7}} \times \left(-\frac{\cancel{3}^{1}}{\cancel{5}}\right)\right\} \times (a^{1+1+2}) \times \left(b^{2+1}\right) \times (c^{2+1})$$
$$= -a^4b^3c^3$$

Thus, the answer is $-a^4b^3c^3$.

Algebraic Expressions and Identities Ex 6.3 Q14

Answer :

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

We have:

$$\left(\frac{4}{3}u^2vw\right) \times \left(-5uvw^2\right) \times \left(\frac{1}{3}v^2wu\right)$$
$$= \left\{\frac{4}{3} \times (-5) \times \frac{1}{3}\right\} \times (u^2 \times u \times u) \times (v \times v \times v^2) \times (w \times w^2 \times w)$$
$$= \left\{\frac{4}{3} \times (-5) \times \frac{1}{3}\right\} \times (u^{2+1+1}) \times (v^{1+1+2}) \times (w^{1+2+1})$$
$$= -\frac{20}{9}u^4v^4w^4$$

Thus, the answer is $-\frac{20}{9}u^4v^4w^4$.

Algebraic Expressions and Identities Ex 6.3 Q15

Answer :

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

We have:

$$(0.5x) \times \left(\frac{1}{3}xy^2z^4\right) \times \left(24x^2yz\right)$$
$$= \left(0.5 \times \frac{1}{3} \times 24\right) \times (x \times x \times x^2) \times \left(y^2 \times y\right) \times \left(z^4 \times z\right)$$
$$= \left(0.5 \times \frac{1}{3} \times 24\right) \times (x^{1+1+2}) \times \left(y^{2+1}\right) \times \left(z^{4+1}\right)$$
$$= 4x^4y^3z^5$$

Thus, the answer is $4x^4y^3z^5$.

Algebraic Expressions and Identities Ex 6.3 Q16

Answer :

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

We have:

$$\left(\frac{4}{3}pq^2\right) \times \left(-\frac{1}{4}p^2r\right) \times \left(16p^2q^2r^2\right)$$
$$= \left\{\frac{4}{3} \times \left(-\frac{1}{4}\right) \times 16\right\} \times (p \times p^2 \times p^2) \times \left(q^2 \times q^2\right) \times \left(r \times r^2\right)$$
$$= \left\{\frac{4}{3} \times \left(-\frac{1}{4}\right) \times 16\right\} \times (p^{1+2+2}) \times \left(q^{2+2}\right) \times \left(r^{1+2}\right)$$
$$= -\frac{16}{3}p^5q^4r^3$$

Thus, the answer is $-\frac{1}{3}p^5q^4r^3$.

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