



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:

$$\begin{aligned} & \left(\frac{7}{9} ab^3 \right) \times \left(\frac{15}{7} ac^2b \right) \times \left(-\frac{3}{5} a^2c \right) \\ &= \left\{ \frac{7}{9} \times \frac{15}{7} \times \left(-\frac{3}{5} \right) \right\} \times (a \times a \times a^2) \times (b^3 \times b) \times (c^2 \times c) \\ &= \left\{ \frac{\cancel{7}^1}{\cancel{9}_3} \times \frac{\cancel{15}^3}{\cancel{7}} \times \left(-\frac{\cancel{3}^1}{\cancel{5}} \right) \right\} \times (a \times a \times a^2) \times (b^3 \times b) \times (c^2 \times c) \\ &= \left\{ \frac{\cancel{7}^1}{\cancel{9}_3} \times \frac{\cancel{15}^3 \cancel{3}^1}{\cancel{7}} \times \left(-\frac{\cancel{3}^1}{\cancel{5}} \right) \right\} \times (a^{1+1+2}) \times (b^{3+1}) \times (c^{2+1}) \\ &= -a^4b^3c^3 \end{aligned}$$

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:

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

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:

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

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:

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

Thus, the answer is $-\frac{16}{3} p^5q^4r^3$.

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