



Algebraic Expressions and Identities Ex 6.5 Q16

Answer :

To multiply, we will use distributive law as follows:

$$\begin{aligned}(2xy + 3y^2)(3y^2 - 2) \\&= 2xy(3y^2 - 2) + 3y^2(3y^2 - 2) \\&= 6xy^3 - 4xy + 9y^4 - 6y^2 \\&= 9y^4 + 6xy^3 - 6y^2 - 4xy\end{aligned}$$

Thus, the answer is $9y^4 + 6xy^3 - 6y^2 - 4xy$.

Algebraic Expressions and Identities Ex 6.5 Q17

Answer :

To multiply, we will use distributive law as follows:

$$\begin{aligned}(3x - 5y)(x + y) \\&= 3x(x + y) - 5y(x + y) \\&= 3x^2 + 3xy - 5xy - 5y^2 \\&= 3x^2 - 2xy - 5y^2\end{aligned}$$

$$\therefore (3x - 5y)(x + y) = 3x^2 - 2xy - 5y^2$$

Now, we put $x = -1$ and $y = -2$ on both sides to verify the result.

$$\begin{aligned}\text{LHS} &= (3x - 5y)(x + y) \\&= \{3(-1) - 5(-2)\}\{-1 + (-2)\} \\&= (-3 + 10)(-3) \\&= (7)(-3) \\&= -21\end{aligned}$$

$$\begin{aligned}\text{RHS} &= 3x^2 - 2xy - 5y^2 \\&= 3(-1)^2 - 2(-1)(-2) - 5(-2)^2 \\&= 3 \times 1 - 4 - 5 \times 4 \\&= 3 - 4 - 20 \\&= -21\end{aligned}$$

Because LHS is equal to RHS, the result is verified.

Thus, the answer is $3x^2 - 2xy - 5y^2$.

Algebraic Expressions and Identities Ex 6.5 Q18

Answer :

To multiply, we will use distributive law as follows:

$$\begin{aligned}(x^2y - 1)(3 - 2x^2y) \\&= x^2y(3 - 2x^2y) - 1 \times (3 - 2x^2y) \\&= 3x^2y - 2x^4y^2 - 3 + 2x^2y \\&= 5x^2y - 2x^4y^2 - 3\end{aligned}$$

$$\therefore (x^2y - 1)(3 - 2x^2y) = 5x^2y - 2x^4y^2 - 3$$

Now, we put $x = -1$ and $y = -2$ on both sides to verify the result.

$$\begin{aligned}\text{LHS} &= (x^2y - 1)(3 - 2x^2y) \\&= [(-1)^2(-2) - 1][3 - 2(-1)^2(-2)] \\&= [1 \times (-2) - 1][3 - 2 \times 1 \times (-2)] \\&= (-2 - 1)(3 + 4) \\&= -3 \times 7 \\&= -21\end{aligned}$$

$$\begin{aligned}\text{RHS} &= 5x^2y - 2x^4y^2 - 3 \\&= 5(-1)^2(-2) - 2(-1)^4(-2)^2 - 3 \\&= [5 \times 1 \times (-2)] - [2 \times 1 \times 4] - 3 \\&= -10 - 8 - 3 \\&= -21\end{aligned}$$

Because LHS is equal to RHS, the result is verified.

Thus, the answer is $5x^2y - 2x^4y^2 - 3$.

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