Algebraic Expressions and Identities Ex 6.4 Q14

Answer :

To find the product, we will use distributive law as follows:

$$\begin{aligned}&\frac{7}{5}x^2y\left(\frac{3}{5}xy^2+\frac{2}{5}x\right)\\&=\frac{7}{5}x^2y\times\frac{3}{5}xy^2+\frac{7}{5}x^2y\times\frac{2}{5}x\\&=\frac{21}{25}x^{2+1}y^{1+2}+\frac{14}{25}x^{2+1}y\\&=\frac{21}{25}x^3y^3+\frac{14}{25}x^3y\end{aligned}$$

Thus, the answer is $\frac{21}{25}x^3y^3+\frac{14}{25}x^3y$.

Algebraic Expressions and Identities Ex 6.4 Q15

Answer :

To find the product, we will use distributive law as follows:

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

Thus, the answer is $\frac{4}{3}a^3+\frac{4}{3}ab^2-4ac^2$.

Algebraic Expressions and Identities Ex 6.4 Q16

Answer :

To find the product, we will use distributive law as follows:

$$\begin{aligned}&24x^2(1-2x)\\&=24x^2\times 1-24x^2\times 2x\\&=24x^2-48x^{1+2}\\&=24x^2-48x^3\end{aligned}$$

Substituting $x = 3$ in the result, we get:

$$\begin{aligned}&24x^2-48x^3\\&=24(3)^2-48(3)^3\\&=24\times 9-48\times 27\\&=216-1296\\&=-1080\end{aligned}$$

Thus, the product is $\left(24x^2-48x^3\right)$ and its value for $x = 3$ is (-1080).

Algebraic Expressions and Identities Ex 6.4 Q17

Answer :

To find the product, we will use distributive law as follows:

$$\begin{aligned}&-3y\left(xy+y^2\right)\\&=-3y\times xy+(-3y)\times y^2\\&=-3xy^{1+1}-3y^{1+2}\\&=-3xy^2-3y^3\end{aligned}$$

Substituting $x = 4$ and $y = 5$ in the result, we get:

$$\begin{aligned}&-3xy^2-3y^3\\&=-3(4)(5)^2-3(5)^3\\&=-3(4)(25)-3(125)\\&=-300-375\\&=-675\end{aligned}$$

Thus, the product is $(-3xy^2-3y^3)$, and its value for $x = 4$ and $y = 5$ is (-675).

Algebraic Expressions and Identities Ex 6.4 Q18

Answer :

To find the product, we will use distributive law as follows:

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

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

$$\begin{aligned}&-3x^3y^3+\tfrac{3}{2}x^2y^4\\&=-3(1)^3(2)^3+\tfrac{3}{2}(1)^2(2)^4\\&=-3\times 1\times 8+\tfrac{3}{2}\times 1\times 16\\&=-24+24\\&=0\end{aligned}$$

Thus, the product is $-3x^3y^3+\frac{3}{2}x^2y^4$, and its value for $x = 1$ and $y = 2$ is 0.

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