



Algebraic Expressions and Identities Ex 6.5 Q23

Answer :

To simplify, we will proceed as follows:

$$\begin{aligned} & x^2(x-y)y^2(x+2y) \\ &= [x^2(x-y)][y^2(x+2y)] \\ &= (x^3 - x^2y)(xy^2 + 2y^3) \\ &= x^3(xy^2 + 2y^3) - x^2y(xy^2 + 2y^3) \\ &= x^4y^2 + 2x^3y^3 - [x^3y^3 + 2x^2y^4] \\ &= x^4y^2 + 2x^3y^3 - x^3y^3 - 2x^2y^4 \\ &= x^4y^2 + x^3y^3 - 2x^2y^4 \end{aligned}$$

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

Algebraic Expressions and Identities Ex 6.5 Q24

Answer :

To simplify, we will proceed as follows:

$$\begin{aligned} & (x^3 - 2x^2 + 5x - 7)(2x - 3) \\ &= 2x(x^3 - 2x^2 + 5x - 7) - 3(x^3 - 2x^2 + 5x - 7) \\ &= 2x^4 - 4x^3 + 10x^2 - 14x - 3x^3 + 6x^2 - 15x + 21 \\ &= 2x^4 - 4x^3 - 3x^3 + 10x^2 + 6x^2 - 14x - 15x + 21 \quad (\text{Rearranging}) \\ &= 2x^4 - 7x^3 + 16x^2 - 29x + 21 \quad (\text{Combining like terms}) \end{aligned}$$

Thus, the answer is $2x^4 - 7x^3 + 16x^2 - 29x + 21$.

Algebraic Expressions and Identities Ex 6.5 Q25

Answer :

To simplify, we will proceed as follows:

$$\begin{aligned}(5x + 3)(x - 1)(3x - 2) &= [(5x + 3)(x - 1)](3x - 2) \\&= [5x(x - 1) + 3(x - 1)](3x - 2) && \text{(Distributive law)} \\&= [5x^2 - 5x + 3x - 3](3x - 2) \\&= [5x^2 - 2x - 3](3x - 2) \\&= 3x(5x^2 - 2x - 3) - 2(5x^2 - 2x - 3) \\&= 15x^3 - 6x^2 - 9x - [10x^2 - 4x - 6] \\&= 15x^3 - 6x^2 - 9x - 10x^2 + 4x + 6 \\&= 15x^3 - 6x^2 - 10x^2 - 9x + 4x + 6 && \text{(Rearranging)} \\&= 15x^3 - 16x^2 - 5x + 6 && \text{(Combining like terms)}\end{aligned}$$

Thus, the answer is $15x^3 - 16x^2 - 5x + 6$.

Algebraic Expressions and Identities Ex 6.5 Q26

Answer :

To simplify, we will proceed as follows:

$$\begin{aligned}(5 - x)(6 - 5x)(2 - x) &= [(5 - x)(6 - 5x)](2 - x) \\&= [5(6 - 5x) - x(6 - 5x)](2 - x) && \text{(Distributive law)} \\&= (30 - 25x - 6x + 5x^2)(2 - x) \\&= (30 - 31x + 5x^2)(2 - x) \\&= 2(30 - 31x + 5x^2) - x(30 - 31x + 5x^2) \\&= 60 - 62x + 10x^2 - 30x + 31x^2 - 5x^3 \\&= 60 - 62x - 30x + 10x^2 + 31x^2 - 5x^3 && \text{(Rearranging)} \\&= 60 - 92x + 41x^2 - 5x^3 && \text{(Combining like terms)}\end{aligned}$$

Thus, the answer is $60 - 92x + 41x^2 - 5x^3$.

Algebraic Expressions and Identities Ex 6.5 Q27

Answer :

To simplify, we will proceed as follows:

$$\begin{aligned}(2x^2 + 3x - 5)(3x^2 - 5x + 4) &= 2x^2(3x^2 - 5x + 4) + 3x(3x^2 - 5x + 4) - 5(3x^2 - 5x + 4) && \text{(Distributive law)} \\&= 6x^4 - 10x^3 + 8x^2 + 9x^3 - 15x^2 + 12x - 15x^2 + 25x - 20 \\&= 6x^4 - 10x^3 + 9x^3 + 8x^2 - 15x^2 - 15x^2 + 12x + 25x - 20 && \text{(Rearranging)} \\&= 6x^4 - x^3 - 22x^2 + 36x - 20 && \text{(Combining like terms)}\end{aligned}$$

Thus, the answer is $6x^4 - x^3 - 22x^2 + 36x - 20$.

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