



Algebraic Expressions Ex 7.2 Q13

**Answer :**

$$\begin{aligned}\text{(i) Required expression} &= (p^3 - 4 + 3p^2) - (5p^2 - 3p^3 + p - 6) \\ &= p^3 - 4 + 3p^2 - 5p^2 + 3p^3 - p + 6 \\ &= p^3 + 3p^3 + 3p^2 - 5p^2 - p - 4 + 6 \\ &= 4p^3 - 2p^2 - p + 2\end{aligned}$$

$$\begin{aligned}\text{(ii) Required expression} &= (7 + x - x^2) - (9 + x + 3x^2 + 7x^3) \\ &= 7 + x - x^2 - 9 - x - 3x^2 - 7x^3 \\ &= -7x^3 - x^2 - 3x^2 + 7 - 9 \\ &= -7x^3 - 4x^2 - 2\end{aligned}$$

$$\begin{aligned}\text{(iii) Required expression} &= (1 - 5y^2) - (y^3 + 7y^2 + y + 1) \\ &= 1 - 5y^2 - y^3 - 7y^2 - y - 1 \\ &= -y^3 - 5y^2 - 7y^2 - y \\ &= -y^3 - 12y^2 - y\end{aligned}$$

$$\begin{aligned}\text{(iv) Required expression} &= (x^3 - 5x^2 + 3x + 1) - (6x^2 - 4x^3 + 5 + 3x) \\ &= x^3 - 5x^2 + 3x + 1 - 6x^2 + 4x^3 - 5 - 3x \\ &= x^3 + 4x^3 - 5x^2 - 6x^2 + 1 - 5 \\ &= 5x^3 - 11x^2 - 4\end{aligned}$$

Algebraic Expressions Ex 7.2 Q14

**Answer :**

$$\begin{aligned}\text{Required expression} &= \{(3x^2 - 5x + 2) + (-5x^2 - 8x + 9)\} - (4x^2 - 7x + 9) \\ &= \{3x^2 - 5x + 2 - 5x^2 - 8x + 9\} - (4x^2 - 7x + 9) \\ &= \{3x^2 - 5x^2 - 5x - 8x + 2 + 9\} - (4x^2 - 7x + 9) \\ &= \{-2x^2 - 13x + 11\} - (4x^2 - 7x + 9) \\ &= -2x^2 - 13x + 11 - 4x^2 + 7x - 9 \\ &= -2x^2 - 4x^2 - 13x + 7x + 11 - 9 \\ &= -6x^2 - 6x + 2\end{aligned}$$

Algebraic Expressions Ex 7.2 Q15

**Answer :**

$$\begin{aligned} &\text{Sum of } (13x - 4y + 7z) \text{ and } (-6z + 6x + 3y) \\ &= \{(13x - 4y + 7z) + (-6z + 6x + 3y)\} \\ &= \{13x - 4y + 7z - 6z + 6x + 3y\} \\ &= \{13x + 6x - 4y + 3y + 7z - 6z\} \\ &= 19x - y + z \end{aligned}$$

$$\begin{aligned} &\text{Sum of } (6x - 4y - 4z) \text{ and } (2x + 4y - 7) \\ &= (6x - 4y - 4z) + (2x + 4y - 7) \\ &= 6x - 4y - 4z + 2x + 4y - 7 \\ &= 8x - 4z - 7 \end{aligned}$$

$$\begin{aligned} \text{Now, required expression} &= \{(8x - 4z - 7) - (19x - y + z)\} \\ &= 8x - 4z - 7 - 19x + y - z \\ &= 8x - 19x + y - 4z - z - 7 \\ &= -11x + y - 5z - 7 \end{aligned}$$

Algebraic Expressions Ex 7.2 Q16

**Answer :**

$$\begin{aligned} &\text{Sum of } (x^2 + 3y^2 - 6xy), (2x^2 - y^2 + 8xy), (y^2 + 8) \text{ and } (x^2 - 3xy) \\ &= \{(x^2 + 3y^2 - 6xy) + (2x^2 - y^2 + 8xy) + (y^2 + 8) + (x^2 - 3xy)\} \\ &= \{x^2 + 3y^2 - 6xy + 2x^2 - y^2 + 8xy + y^2 + 8 + x^2 - 3xy\} \\ &= \{x^2 + 2x^2 + x^2 + 3y^2 - y^2 + y^2 - 6xy + 8xy - 3xy + 8\} \\ &= 4x^2 + 3y^2 - xy + 8 \end{aligned}$$

$$\begin{aligned} \text{Now, required expression} &= (4x^2 + 3y^2 - xy + 8) - (-3x^2 + 4y^2 - xy + x - y + 3) \\ &= 4x^2 + 3y^2 - xy + 8 + 3x^2 - 4y^2 + xy - x + y - 3 \\ &= 4x^2 + 3x^2 + 3y^2 - 4y^2 - x + y - 3 + 8 \\ &= 7x^2 - y^2 - x + y + 5 \end{aligned}$$

Algebraic Expressions Ex 7.2 Q17

**Answer :**

The required expression can be got by subtracting  $xy - 3yz + 4zx$  from  $4xy - 3zx + 4yz + 7$ .

$$\begin{aligned} \text{Therefore, required expression} &= (4xy - 3zx + 4yz + 7) - (xy - 3yz + 4zx) \\ &= 4xy - 3zx + 4yz + 7 - xy + 3yz - 4zx \\ &= 4xy - xy - 3zx - 4zx + 4yz + 3yz + 7 \\ &= 3xy - 7zx + 7yz + 7 \end{aligned}$$

Algebraic Expressions Ex 7.2 Q18

**Answer :**

Let 'M' be the required expression. Then, we have

$$x^2 - xy + y^2 - x + y + 3 - M = -x^2 + 3y^2 - 4xy + 1$$

Therefore,

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

Collecting positive and negative like terms together, we get

$$\begin{aligned} &x^2 + x^2 - xy + 4xy + y^2 - 3y^2 - x + y + 3 - 1 \\ &= 2x^2 + 3xy - 2y^2 - x + y + 2 \end{aligned}$$

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