



Algebraic Expressions Ex 7.2 Q19

**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

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

Algebraic Expressions Ex 7.2 Q20

**Answer :**

$$\begin{aligned} \text{Required expression} &= (x - 2y + 3z) - (3x + 5y - 7) \\ &= x - 2y + 3z - 3x - 5y + 7 \end{aligned}$$

Collecting positive and negative like terms together, we get

$$\begin{aligned} &x - 3x - 2y - 5y + 3z + 7 \\ &= -2x - 7y + 3z + 7 \end{aligned}$$

Algebraic Expressions Ex 7.2 Q21

**Answer :**

$$\begin{aligned} \text{Required expression} &= (a^2 - 3ab + 2b^2) - (2a^2 - 7ab + 9b^2) \\ &= a^2 - 3ab + 2b^2 - 2a^2 + 7ab - 9b^2 \end{aligned}$$

Collecting positive and negative like terms together, we get

$$\begin{aligned} &= a^2 - 2a^2 - 3ab + 7ab + 2b^2 - 9b^2 \\ &= -a^2 + 4ab - 7b^2 \end{aligned}$$

Algebraic Expressions Ex 7.2 Q22

**Answer :**

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

$$12x^3 - 4x^2 + 3x - 7 + M = x^3 + 2x^2 - 3x + 2$$

Therefore,

$$\begin{aligned} M &= (x^3 + 2x^2 - 3x + 2) - (12x^3 - 4x^2 + 3x - 7) \\ &= x^3 + 2x^2 - 3x + 2 - 12x^3 + 4x^2 - 3x + 7 \end{aligned}$$

Collecting positive and negative like terms together, we get

$$\begin{aligned} &x^3 - 12x^3 + 2x^2 + 4x^2 - 3x - 3x + 2 + 7 \\ &= -11x^3 + 6x^2 - 6x + 9 \end{aligned}$$

Algebraic Expressions Ex 7.2 Q23

**Answer :**

We have

$$\begin{aligned}P + Q + R &= (7x^2 + 5xy - 9y^2) + (4y^2 - 3x^2 - 6xy) + (-4x^2 + xy + 5y^2) \\&= 7x^2 + 5xy - 9y^2 + 4y^2 - 3x^2 - 6xy - 4x^2 + xy + 5y^2\end{aligned}$$

Collecting positive and negative like terms together, we get

$$\begin{aligned}&7x^2 - 3x^2 - 4x^2 + 5xy - 6xy + xy - 9y^2 + 4y^2 + 5y^2 \\&= 7x^2 - 7x^2 + 6xy - 6xy - 9y^2 + 9y^2 \\&= 0\end{aligned}$$

Algebraic Expressions Ex 7.2 Q24

**Answer :**

We have

$$\begin{aligned}P + Q + R + S - T &= \{(a^2 - b^2 + 2ab) + (a^2 + 4b^2 - 6ab) + (b^2 + b) + (a^2 - 4ab)\} - (-2a^2 + b^2 - ab + a) \\&= \{a^2 - b^2 + 2ab + a^2 + 4b^2 - 6ab + b^2 + b + a^2 - 4ab\} - (-2a^2 + b^2 - ab + a) \\&= \{3a^2 + 4b^2 - 8ab + b\} - (-2a^2 + b^2 - ab + a) \\&= 3a^2 + 4b^2 - 8ab + b + 2a^2 - b^2 + ab - a\end{aligned}$$

Collecting positive and negative like terms together, we get

$$\begin{aligned}&3a^2 + 2a^2 + 4b^2 - b^2 - 8ab + ab - a + b \\&= 5a^2 + 3b^2 - 7ab - a + b\end{aligned}$$

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