

### Exercise 8C

Q8

## Answer:

$$A = 7x^{2} + 5xy - 9y^{2}$$

$$B = -4x^{2} + xy + 5y^{2}$$

$$C = 4y^{2} - 3x^{2} - 6xy$$

Substituting the values of A, B and C in A+B+C:

$$= (7x^2 + 5xy - 9y^2) + (-4x^2 + xy + 5y^2) + (4y^2 - 3x^2 - 6xy)$$
  
=  $7x^2 + 5xy - 9y^2 - 4x^2 + xy + 5y^2 + 4y^2 - 3x^2 - 6xy$ 

Rearranging and collecting the like terms:

$$(7-4-3)x^{2} + (5+1-6)xy + (-9+5+4)y^{2}$$

$$= (0)x^{2} + (0)xy + (0)y^{2}$$

$$= 0$$

$$\Rightarrow \mathbf{A} + \mathbf{B} + \mathbf{C} = 0$$

Q9

## Answer:

Let the expression to be added be X.

$$(5x^3 - 2x^2 + 6x + 7) + X = (x^3 + 3x^2 - x + 1)$$
  
 $X = (x^3 + 3x^2 - x + 1) - (5x^3 - 2x^2 + 6x + 7)$ 

Changing the sign of each term of the expression that is to be subtracted and then adding:  $X = (x^3 + 3x^2 - x + 1) + (-5x^3 + 2x^2 - 6x - 7)$ 

$$X = x^3 + 3x^2 - x + 1 - 5x^3 + 2x^2 - 6x - 7$$

Rearranging and collecting the like terms:

$$X = (1-5)x^3 + (3+2)x^2 + (-1-6)x + 1-7$$

$$X = -4x^3 + 5x^2 - 7x - 6$$

So,  $-4x^3 + 5x^2 - 7x$  -6 must be added to  $5x^3 - 2x^2 + 6x + 7$  to get the sum as  $x^3 + 3x^2 - x + 1$ .

# Q10

### Answer:

$$P = a^2 - b^2 + 2ab$$
  
 $Q = a^2 + 4b^2 - 6ab$ 

$$R = b^2 + 6$$

$$S = a^2 - 4ab$$

$$T = -2a^2 + b^2 - ab + a$$

## Adding P, Q, R and S:

# P+Q+R+S

$$= (a^2 - b^2 + 2ab) + (a^2 + 4b^2 - 6ab) + (b^2 + 6) + (a^2 - 4ab)$$
  
=  $a^2 - b^2 + 2ab + a^2 + 4b^2 - 6ab + b^2 + 6 + a^2 - 4ab$ 

# Rearranging and collecting the like terms:

= 
$$(1+1+1)a^2 + (-1+4+1)b^2 + (2-6-4)ab+6$$
  
P+Q+R+S =  $3a^2 + 4b^2 - 8ab+6$ 

To find 
$$P + Q + R + S - T$$
, subtract  $T = (-2a^2 + b^2 - ab + a)$  from  $P + Q + R + S = (3a^2 + 4b^2 - 8ab + 6)$ .

On changing the sign of each term of the expression that is to be subtracted and then adding: Term to be subtracted =  $-2a^2 + b^2 - ab + a$ 

Changing the sign of each term of the expression gives  $2a^2 - b^2 + ab - a$ .

Now add:

$$(3a^2 + 4b^2 - 8ab + 6) + (2a^2 - b^2 + ab - a) = 3a^2 + 4b^2 - 8ab + 6 + 2a^2 - b^2 + ab - a$$
  
=  $(3 + 2)a^2 + (4 - 1)b^2 + (-8 + 1)ab - a + 6$ 

$$P+Q+R+S-T=5a^2+3b^2-7$$
 ab - a+6

### Q11

#### Answer:

Let the expression to be subtracted be X.

$$(a^3 - 4a^2 + 5a - 6)$$
-X =  $(a^2 - 2a + 1)$ 

$$X = (a^3 - 4a^2 + 5a - 6) - (a^2 - 2a + 1)$$

Since '-' sign precedes the parenthesis, we remove it and change the sign of each term within the

$$X = a^3 - 4a^2 + 5a - 6 - a^2 + 2a - 1$$

Rearranging and collecting the like terms:

$$X = a^3 + (-4-1)a^2 + (5+2)a - 6 - 1$$

$$X = a^3 - 5a^2 + 7a - 7$$

So, 
$$a^3 - 5a^2 + 7a - 7$$
 must be subtracted from  $a^3 - 4a^2 + 5a - 6$  to obtain  $a^2 - 2a + 1$ .

#### 012

#### Answer:

To calculate how much is a + 2b - 3c greater than 2a - 3b + c, we have to subtract 2a - 3b + c from a + 2b - 3c

Change the sign of each term of the expression that is to be subtracted and then add.

\*\*\*\*\*\*\*\* END \*\*\*\*\*\*\*