Exercise 6A

Q12
Answer :

Writing the terms of the given expressions (in the same order) in the form of rows with like terms below each other and subtracting column-wise:

$$
\begin{array}{r}
-11p \\
-16p \\
+ \\
\hline
5p
\end{array}
$$

Q13
Answer :

Writing the terms of the given expressions (in the same order) in the form of rows with like terms below each other and subtracting column-wise:

$$
\begin{array}{r}
3a - 4b - c + 6 \\
2a - 5b + 2c - 9 \\
-\ \ +\ \ -\ \ + \\
\hline
a + b - 3c + 15
\end{array}
$$

Q14
Answer :

Writing the terms of the given expressions (in the same order) in the form of rows with like terms below each other and subtracting column-wise:

$$
\begin{array}{r}
p - 2q - 5r - 8 \\
-6p + q + 3r + 8 \\
+\ \ -\ \ -\ \ - \\
\hline
7p - 3q - 8r - 16
\end{array}
$$

Q15
Answer :

On arranging the terms of the given expressions in the descending powers of x and subtracting column-wise:

$$
\begin{array}{r}
3x^3 - x^2 + 2x - 4 \\
x^3 + 3x^2 - 5x + 4 \\
-\ \ -\ \ +\ \ - \\
\hline
2x^3 - 4x^2 + 7x - 8
\end{array}
$$

Q16
Answer :

Arranging the terms of the given expressions in the descending powers of x and subtracting column-wise:

$$
\begin{array}{r}
4y^4 - 2y^3 - 6y^2 - y + 5 \\
5y^4 - 3y^3 + 2y^2 + y - 1 \\
-\ \ +\ \ -\ \ -\ \ + \\
\hline
-y^4 + y^3 - 8y^2 - 2y + 6
\end{array}
$$

Q17
Answer :

Writing the terms of the given expressions (in the same order) in the form of rows with like terms below each other and subtracting column-wise:

$$3p^2 - 4q^2 - 5r^2 - 6$$
$$4p^2 + 5q^2 - 6r^2 + 7$$
$$\underline{\quad - \quad - \quad + \quad - \quad}$$
$$-p^2 - 9q^2 + r^2 - 13$$

Q18

Answer :

Let the required number be x.

$$\left(3a^2 - 6ab - 3b^2 - 1\right) - x = 4a^2 - 7ab - 4b^2 + 1$$
$$\left(3a^2 - 6ab - 3b^2 - 1\right) - \left(4a^2 - 7ab - 4b^2 + 1\right) = x$$

$$3a^2 - 6ab - 3b^2 - 1$$
$$4a^2 - 7ab - 4b^2 + 1$$
$$\underline{\quad - \quad + \quad + \quad - \quad}$$
$$-a^2 + ab + b^2 - 2$$

$\therefore$ Required number = $-a^2 + ab + b^2 - 2$

Q19

Answer :

Sides of the rectangle are l and b.

$l = 5x^2 - 3y^2$

$b = x^2 + 2xy$

Perimeter of the rectangle is $(2l + 2b)$.

$$\text{Perimeter} = 2\left(5x^2 - 3y^2\right) + 2\left(x^2 + 2xy\right)$$

$$= 10x^2 - 6y^2 + 2x^2 + 4xy$$

$$\begin{array}{l} 10x^2 - 6y^2 \\ \underline{2x^2 + 4xy} \\ 12x^2 - 6y^2 + 4xy \end{array}$$

Hence, the perimeter of the rectangle is $12x^2 - 6y^2 + 4xy$.

Q20

Answer :

Let $a,\ b\ and\ c$ be the three sides of the triangle.

$\therefore$ Perimeter of the triangle $=(a+b+c)$

Given perimeter of the triangle $= 6p^2 - 4p + 9$
One side (a) $= p^2 - 2p + 1$
Other side (b) $= 3p^2 - 5p + 3$
Perimeter $= (a+b+c)$
$\left(6p^2 - 4p + 9\right) = \left(p^2 - 2p + 1\right) + \left(3p^2 - 5p + 3\right) + c$
$6p^2 - 4p + 9 - p^2 + 2p - 1 - 3p^2 + 5p - 3 = c$
$\left(6p^2 - p^2 - 3p^2\right) + \left(-4p + 2p + 5p\right) + \left(9 - 1 - 3\right) = c$
$2p^2 + 3p + 5 = c$

Thus, the third side is $2p^2 + 3p + 5$.

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