Exercise 6C

Q1

Answer :

(i) $24x^2y^3$ by $3xy$

$$\frac{24x^3y^3}{3xy}$$

$$\Rightarrow \left(\frac{24}{3}\right)(x^{2-1})(y^{3-1})$$

$$\Rightarrow 8xy^2.$$

Therefore, the quotient is $8xy^2$.

(ii) $36xyz^2$ by $-9xz$

$$\frac{36xyz^2}{-9xz}$$

$$\Rightarrow \left(\frac{36}{-9}\right)(x^{1-1})(y^{1-0})(z^{2-1})$$

$$\Rightarrow -4yz$$

Therefore, the quotient is $-4yz$.

(iii)

$-72x^2y^2z \text{ by } -12xyz$

$$\frac{-72x^2y^2z}{-12xyz}$$

$$\Rightarrow \left(\frac{-72}{-12}\right)(x^{2-1})(y^{2-1})(z^{1-1})$$

$$\Rightarrow 6xy$$

Therefore, the quotient is $6xy$.

(iv) $-56mnp^2$ by $7mnp$

$$\frac{-56mnp^2}{7mnp}$$
$$\Rightarrow \left(\frac{-56}{7}\right)(m^{1-1})(n^{1-1})(p^{2-1})$$
$$\Rightarrow -8p$$

Therefore, the quotient is $-8p$.

Q2

Answer :

(i) $5m^3 - 30m^2 + 45m$ by $5m$

$$\left(5m^3 - 30m^2 + 45m\right) \div 5m$$
$$\Rightarrow \frac{5m^3}{5m} - \frac{30m^2}{5m} + \frac{45m}{5m}$$
$$\Rightarrow m^2 - 6m + 9$$

Therefore, the quotient is $m^2 - 6m + 9$.

(ii) $8x^2y^2 - 6xy^2 + 10x^2y^3$ by $2xy$

$$\left(8x^2y^2 - 6xy^2 + 10x^2y^3\right) \div 2xy$$
$$\Rightarrow \frac{8x^2y^2}{2xy} - \frac{6xy^2}{2xy} + \frac{10x^2y^3}{2xy}$$
$$\Rightarrow 4xy - 3y + 5xy^2$$

Therefore, the quotient is $4xy - 3y + 5xy^2$.

(iii) $9x^2y - 6xy + 12xy^2$ by $-3xy$

$$\left(9x^2y - 6xy + 12xy^2\right) \div -3xy$$

$$\Rightarrow \frac{9x^2y}{-3xy} - \frac{6xy}{-3xy} + \frac{12xy^2}{-3xy}$$

$$\Rightarrow -3x + 2 - 4y$$

Therefore, the quotient is $-3x + 2 - 4y$.

(iv) $12x^4 + 8x^3 - 6x^2$ by $-2x^2$

$$\left(12x^4 + 8x^3 - 6x^2\right) \div -2x^2 \; {}^{2}\text{-}4x\text{+}3^{2}$$

$$\Rightarrow \frac{12x^4}{-2x^2} + \frac{8x^3}{-2x^2} - \frac{6x^2}{-2x^2}$$

$$\Rightarrow -6x$$

Therefore the quotient is $-6x^2 - 4x + 3$.

Q3

Answer :

$$(x^2 - 4x + 4) \div (x - 2)$$

$$x - 2 \overline{)\, x^2 - 4x + 4 \,(x - 2}$$

$$x^2 - 2x$$

$$\underline{- \quad +}$$

$$-2x + 4$$

$$-2x + 4$$

$$\underline{+ \quad -}$$

$$\underline{\times}$$

Therefore, the quotient is $(x-2)$ and the remainder is 0.

Q4

Answer :

$$
\begin{array}{r|l}
x^2-4 & x-2 \\
\cline{2-2}
x^2+2x & \\
\hline
-2x-4 & \\
-2x-4 & \\
\hline
0 &
\end{array}
$$

Therefore, the quotient is $x-2$ and the remainder is 0.

Q5

Answer :

$(x^2 + 12x + 35)$ by $(x + 7)$

$$
\begin{array}{r|l}
x^2+12x+35 & x+5 \\
\cline{2-2}
x^2+7x & \\
\hline
5x+35 & \\
5x+35 & \\
\hline
0 &
\end{array}
$$

Therefore, the quotient is $(x+5)$ and the remainder is 0.

Q6

Answer :

$$
\begin{array}{r|l}
3x+2 & 15x^2+\ \ x-6 \\
 & 15x^2+10x \\
\hline
 & -9x-6 \\
 & -9x-6 \\
\hline
 & \times
\end{array}
\qquad 5x-3
$$

Therefore, the quotient is $(5x-3)$ and the remainder is 0.

Q7

Answer :

$$
\begin{array}{r|l}
7x-9 & 14x^2-53x+45 \\
 & 14x^2-18x \\
\hline
 & -35x+45 \\
 & -35x+45 \\
\hline
 & \times
\end{array}
\qquad 2x-5
$$

Therefore, the quotient is $(2x-5)$ and the remainder is 0.

Q8

Answer :

$$
\begin{array}{r|l}
2x-5 & 6x^2-31x+47 \\
 & 6x^2-15x \\
\hline
 & -16x+47 \\
 & -16x+40 \\
\hline
 & 7
\end{array}
\qquad 3x-8
$$

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