

1 (i)  $p(x) = x^3 - 3x^2 + 5x - 3$

$q(x) = x^2 - 2$

$$\begin{array}{r}
 x-3 \\
 x^2-2 \overline{) x^3 - 3x^2 + 5x - 3} \\
 \underline{x^3 \phantom{- 3x^2} + 2x} \phantom{- 3} \\
 -3x^2 + 7x - 3 \\
 \underline{-3x^2 \phantom{+ 7x} + 6} \phantom{- 3} \\
 7x - 9
 \end{array}$$

$\therefore$  quotient =  $x-3$

remainder =  $7x-9$

1 (ii)  $p(x) = x^4 - 3x^2 + 4x + 5$

$q(x) = x^2 + 1 - x$   
 $= x^2 - x + 1$

$$\begin{array}{r}
 x^2+x-3 \\
 x^2-x+1 \overline{) x^4 - 3x^2 + 4x + 5} \\
 \underline{x^4 + x^2 \phantom{+ 4x} + 5} \phantom{- 3x^2} \\
 x^3 - 4x^2 + 4x + 5 \\
 \underline{x^3 - x^2 + x} \phantom{+ 5} \\
 -3x^2 + 3x + 5 \\
 \underline{-3x^2 + 3x - 3} \phantom{+ 5} \\
 8
 \end{array}$$

$\therefore$  quotient =  $x^2+x-3$

remainder =  $8$