

$$1 \textcircled{i} \quad p(x) = x^3 - 3x^2 + 5x - 3$$

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

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

$$\therefore \text{quotient} = x-3$$

$$\text{remainder} = 7x-9$$

$$1 \textcircled{ii} \quad p(x) = x^4 - 3x^2 + 4x + 5$$

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

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

$$\text{quot.} = x^2+x-3$$

$$\text{rem.} = 8$$