

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

let $q(x) = x^2 - 3x + 2$
 $= (x-1)(x-2)$

$p(1)$
 $= 2 \times 1^4 - 5 \times 1^3 + 2 \times 1^2 - 1 + 2$
 $= 2 - 5 + 2 - 1 + 2$
 $= 6 - 6$
 $= 0$

$\therefore x-1$ is a factor of $p(x)$ by factor theorem

$p(2)$
 $= 2 \times 2^4 - 5 \times 2^3 + 2 \times 2^2 - \cancel{2} + \cancel{2}$
 $= 32 - 40 + 8$
 $= 40 - 40$
 $= 0$

$\therefore x-2$ is a factor of $p(x)$ by factor theorem

$(x-1), (x-2)$ are factors of $p(x)$

$\therefore (x-1)(x-2)$ or $x^2 - 3x + 2$ is a factor of $p(x)$