

Subtracting Polynomials

When subtracting polynomials change the sign to addition and change the sign of each term of the second polynomial expression (the polynomial being subtracted)

$$\begin{array}{r} \text{Eg.(1)} \quad 3x^2 + 4x - 2 \\ - (5x^2 - 2x - 4) \\ \hline \end{array} \qquad \begin{array}{r} 3x^2 + 4x - 2 \\ + -5x^2 + 2x + 4 \\ \hline -2x^2 + 6x + 2 \end{array}$$

$$\begin{array}{r} \text{Eg.(2)} \quad 4x^2 - 5x + 2 \\ - (-x^2 - 7x + 4) \\ \hline \end{array} \qquad \begin{array}{r} 4x^2 - 5x + 2 \\ + x^2 + 7x - 4 \\ \hline 5x^2 + 2x - 2 \end{array}$$

What about: $6x^2 - (4x^2 + 2)$

We can work it out the following way:

$$\begin{array}{r} 6x^2 \\ - 4x^2 + 2 \\ \hline \end{array} \quad \Longrightarrow \quad \begin{array}{r} 6x^2 \\ + -4x^2 - 2 \\ \hline 2x^2 - 2 \end{array} \quad \text{we get the same answer}$$

OR we can distribute the negative to every term in the bracket

$$\begin{array}{l} 6x^2 - (4x^2 + 2) \\ 6x^2 - 4x^2 - 2 \\ 2x^2 - 2 \end{array}$$

$$\begin{array}{l} \text{Eg.(3)} \quad 7x^4 + 6x^3 - (4x^4 + 2x^3 - 1) \\ = 7x^4 + 6x^3 - 4x^4 - 2x^3 + 1 \\ = 3x^4 + 4x^3 + 1 \end{array}$$

$$\begin{array}{l} \text{Eg.(4)} \quad (-5x + 2y) - (-4x - 7) \\ = -5x + 2y + 4x + 7 \\ = -1x + 2y + 7 \end{array}$$

$$\begin{array}{l} \text{Eg.(5)} \quad -18x^4 + 9x^3 - (13x^4 - 12x^3) \\ = -18x^4 + 9x^3 - 13x^4 + 12x^3 \\ = -31x^4 + 21x^3 \end{array}$$