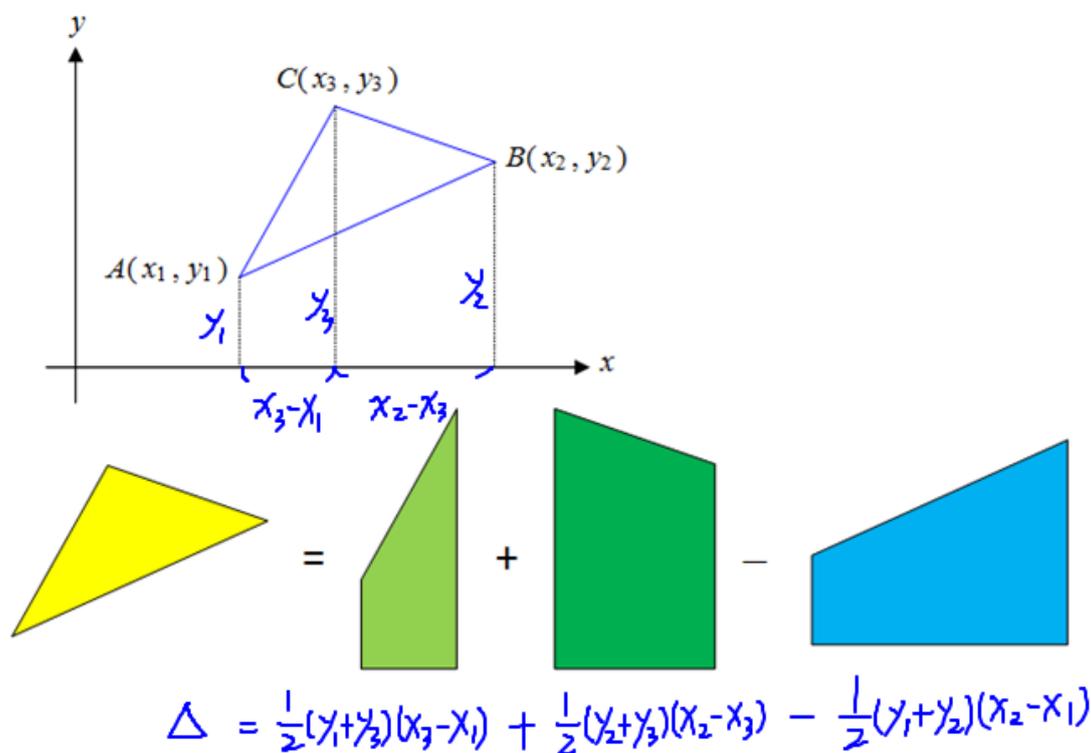
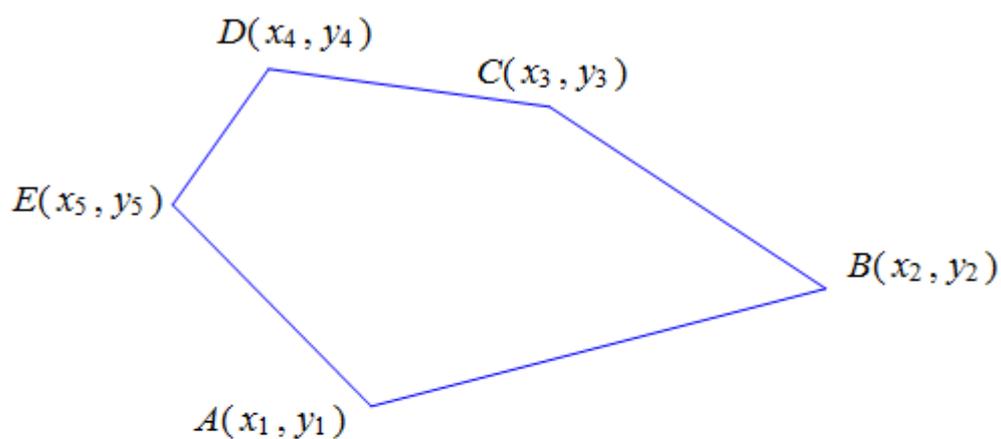


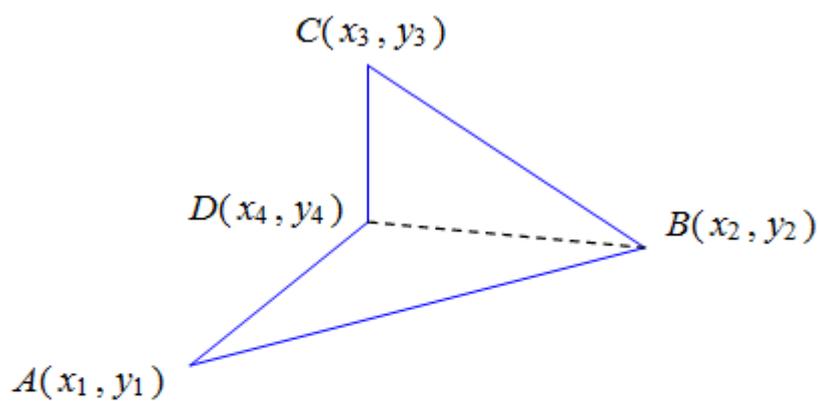
問題：已知三角形三頂點坐標求三角形面積



$$\begin{aligned} \Delta &= \frac{1}{2}(y_1 + y_3)(x_3 - x_1) + \frac{1}{2}(y_2 + y_3)(x_2 - x_3) - \frac{1}{2}(y_1 + y_2)(x_2 - x_1) \\ &= \frac{1}{2}(y_1 x_3 - \cancel{y_1 x_1} + \cancel{y_3 x_3} - y_3 x_1 + \cancel{y_2 x_2} - y_2 x_3 + y_3 x_2 - \cancel{y_1 x_3} - \cancel{y_1 x_2} + \cancel{y_1 x_1} - \cancel{y_2 x_2} + \cancel{y_2 x_1}) \\ &= \frac{1}{2}[(x_1 y_2 + x_2 y_3 + x_3 y_1) - (y_1 x_2 + y_2 x_3 + y_3 x_1)] \\ &= \frac{1}{2} \begin{vmatrix} x_1 & y_1 \\ x_2 & y_2 \\ x_3 & y_3 \\ x_1 & y_1 \end{vmatrix} \quad (\text{依逆時針 } A \rightarrow B \rightarrow C \rightarrow A) \end{aligned}$$



$$\text{五邊形}ABCDE\text{面積} = \frac{1}{2} \begin{vmatrix} x_1 & y_1 \\ x_2 & y_2 \\ x_3 & y_3 \\ x_4 & y_4 \\ x_5 & y_5 \\ x_1 & y_1 \end{vmatrix}$$



若遇內凹圖形，則切割成數個三角形，分別計算再相加！
 ※記得使用逆時針順序，否則要另取絕對值喔！