

Algebra Question. (values in circle beneath on number)

$$(a) (i) \sum_{n=1}^2 \sum_{k=1}^3 c_{nk} a_{ki} d_{nk} = c_{12} a_{11} + c_{22} a_{21}$$

$$\textcircled{2} = 3 \times 2 + (-6) \times 3$$

$$= 6 - 18$$

$$= -12.$$

$$(ii) A - D = \begin{pmatrix} 2 & 1 \\ 3 & 4 \end{pmatrix} - \begin{pmatrix} 3 & 5 \\ 1 & 4 \end{pmatrix}$$

$$\textcircled{3} = \begin{pmatrix} -1 & -4 \\ 2 & 0 \end{pmatrix}$$

Size  $2 \times 2$   
C is  $2 \times 3$   
same

$\therefore$  Multiplication  
is possible.

$$(A-D)C = \begin{pmatrix} -1 & -4 \\ 2 & 0 \end{pmatrix} \begin{pmatrix} -2 & 3 & -1 \\ 4 & -6 & 2 \end{pmatrix}$$

$$= \begin{pmatrix} -14 & 21 & -7 \\ -4 & 6 & -2 \end{pmatrix}$$

$C^T B$  is not possible.

$$C^T \quad \& \quad B$$

$$3 \times 2 \quad \quad \quad 3 \times 1$$

Not the same!