$$C(y) = \frac{1}{26^{2}} \left( y^{\dagger}y - 2y^{\dagger} X \beta + (X \beta) X \beta \right) \frac{1}{3}$$

$$CSS_{\beta} = -2y^{\dagger}X \implies CSS_{\beta} = y^{\dagger}X = \left( y_{1}, y_{2}, y_{3}, y_{4} \right) \left( \frac{1}{3} \right)$$

$$= \left( y_{1} + y_{2} + y_{3} + y_{4} \right) = \left( \frac{2y_{1}}{3y_{1} + y_{2} + y_{3} + 2y_{4}} \right) = \left( \frac{2y_{1}}{3y_{1} + y_{2} + y_{3} + 2y_{4}} \right)$$

$$= \left( \frac{y_{1} + y_{2} + y_{3} + 2y_{4}}{3y_{1} + y_{2} + y_{3} + 2y_{4}} \right) = \left( \frac{2y_{1}}{3y_{1} + y_{2} + y_{3} + 2y_{4}} \right)$$

$$= \left( \frac{y_{1} + y_{2} + y_{3} + 2y_{4}}{3y_{1} + y_{2} + y_{3} + 2y_{4}} \right)$$

$$= \left( \frac{y_{1} + y_{2} + y_{3} + y_{4} + y_{5} + y_{4}}{3y_{1} + y_{2} + y_{3} + 2y_{4}} \right)$$

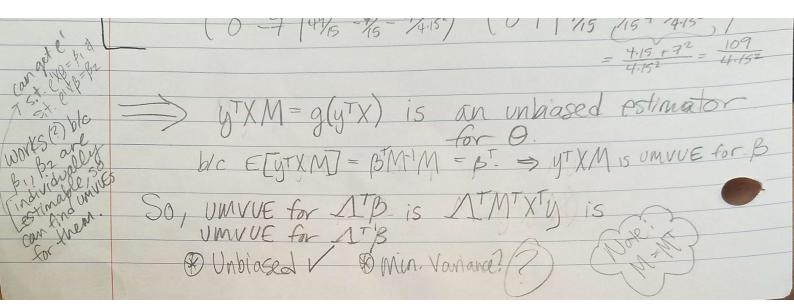
$$= \left( \frac{y_{1} + y_{2} + y_{3} + y_{4} + y_{5} + y_{4}}{3y_{1} + y_{2} + y_{3} + 2y_{4}} \right)$$

$$= \left( \frac{y_{1} + y_{2} + y_{3} + y_{4} + y_{5} + y_{4} + y_{4}}{3y_{1} + y_{2} + y_{3} + 2y_{4}} \right)$$

$$= \left( \frac{y_{1} + y_{2} + y_{3} + y_{4} + y_{5} + y$$

(and 
$$n = 4$$
 in this question).

$$\begin{pmatrix}
4 & 7 \\
7 & 15
\end{pmatrix}^{-1} = \frac{1}{15 \cdot 4 - 72} \begin{pmatrix} 15 & -7 \\
-7 & 4 \end{pmatrix} = \frac{1}{60 \cdot 49} \begin{pmatrix} 15 & -7 \\
-7 & 4 \end{pmatrix} = \frac{1}{60 \cdot 49} \begin{pmatrix} 15 & -7 \\
-7 & 4 \end{pmatrix} = \frac{1}{15 \cdot 4 - 71} \begin{pmatrix} 15/11 & -7/11 \\
-7/11 & 4/11 \end{pmatrix} = \begin{pmatrix} 8/11 & -3/11 \\
29/11 & -15/11 \end{pmatrix} \begin{pmatrix} 7 & 7 \\
7 & 15 \end{pmatrix} = \frac{1}{11} \begin{pmatrix} 32 \cdot 21 & 56 \cdot 45 \\
11/2 & -15/11 \end{pmatrix} \begin{pmatrix} 11/2 & -1/2 \\
11/2 & -1/2 & -1/2 \end{pmatrix} = \begin{pmatrix} 11/2 & 1/2 \\
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1/2 & -1/2 & -1/2 \end{pmatrix} = \begin{pmatrix} 1/2 & 1/2 \\
1/2 & -1/2 & -1/2 \end{pmatrix} = \begin{pmatrix} 1/2 & 1/2 \\
1/2 & -1/2 & -1/2 \end{pmatrix} = \begin{pmatrix} 1$$



control control	We have a CSS for B, XTy.  We have just verified that ATM XTy is  an inbiased estimator for ATB. So, we  know by the Lehmann-Sheffe Thin that  the unique UMWLE for ATB is:  E[ATMXTy   XTy] = ATMXTy (The whole  thing is a  constant).
	So this is the NMME.  unique.