$B_{22} = A_{22} - A_{21} A_{11}^{-1} A_{12}$

COME BACK LATER

(3) $B_{11} = A_{11}^{-1}$. $A_{11} = R_1^T R_1 \rightarrow A_{11}^{-1} = R_1^{-1} (R_1^T)^{-1} = R_1^{-1} (R_1^{-1})^T$

$\cancel{= ((R_1^{-1})^T)^T ((R_1^{-1})^T)}$

$B_{11} = R_1^{-1} (R_1^{-1})^T$

$B_{12} = -A_{11}^{-1} A_{12}$ Prove $B_{12} = -R_1^{-1} R_1^{-T} A_{12}$

trivial b/c $A_{11}^{-1} = R_1^{-1} (R_1^{-T})$

prove $B_{21} = A_{21} R_1^{-1} R_1^{-T}$ given $B_{21} = A_{21} A_{11}^{-1}$

also trivial from

prove $B_{22} = -A_{21} R_1^{-1} R_1^{-T} A_{12} + R_2^T R_2$ given $B_{22} = A_{22} - A_{21} A_{11}^{-1} A_{12}$

=

trivial b/c $R_1^{-1} R_1^{-T} = A_{11}^{-1}$ ✓

$$B = \begin{bmatrix} R_1^{-1} & 0 \\ A_{21} R_1^{-1} & R_2^T \end{bmatrix} \begin{bmatrix} R_1^{-T} & -R_1^{-T} A_{12} \\ 0 & R_2 \end{bmatrix}$$