$$\begin{array}{l}
(Q_{1},8) \\
ATA = (I - 2 - uu^{T})^{T}(I - 2uu^{T}) \\
= (I - 2 - (uu^{T})^{T})(I - 2uu^{T}) \\
= (I - 2 - uu^{T})(I - 2uu^{T}) \\
= (I - 2 - uu^{T})(I - 2uu^{T}) \\
= I - 4 - uu^{T} + 4 - u^{T}(u^{T}, u)u^{T} \\
= I - 4 - uu^{T} + 4 - u^{T} \\
= I - 4 - uu^{T} + 4 - u^{T}
\end{array}$$