Complexity of computing R_1^{-1}, R_2^T, $A_{21} R_1^{-1}$.

Cholesky factor A_{11}, A_{22} takes $\frac{1}{3}n^3$ in going to ~~square~~ $2n^2$

R_2^T takes $\frac{1}{3}n^3$

R_1^{-1} takes $\frac{1}{3}n^3$ to find R_1, R_1 is UT

R_1^{-1} is solving $R_1 X = I$

column by column $= \frac{1}{3}n^3$

$A_{21} R_1^{-1} = 2n^3$ b/c $(n \times n)(n \times n)$

Total $= 2n^3 + n^3 = \boxed{3n^3}$