ECE 133A HW 4

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Exercise A5.6

(a)

Let $DX + XD = A$, we have that $A_{ij} = (D_{ii} + D_{jj})X_{ij}$, Since $DX + XD = B$ we have that

$$A_{ij} = B_{ij}$$
$$B_{ij} = (D_{ii} + D_{jj})X_{ij}$$

Therefore we get that

$$X_{ij} = \frac{B_{ij}}{D_{ii} + D_{jj}}$$

for any i, j, this will exist since $D_{ii} + D_{jj} \neq 0$ for all i and j this computation will cost us 2 flops, 1 for addition and one for division so in total solving for all X_{ij} will cost us $2n^2$ flops.

Exercise A6.3

(a)