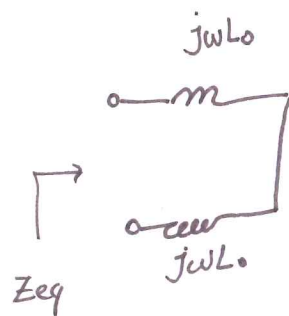
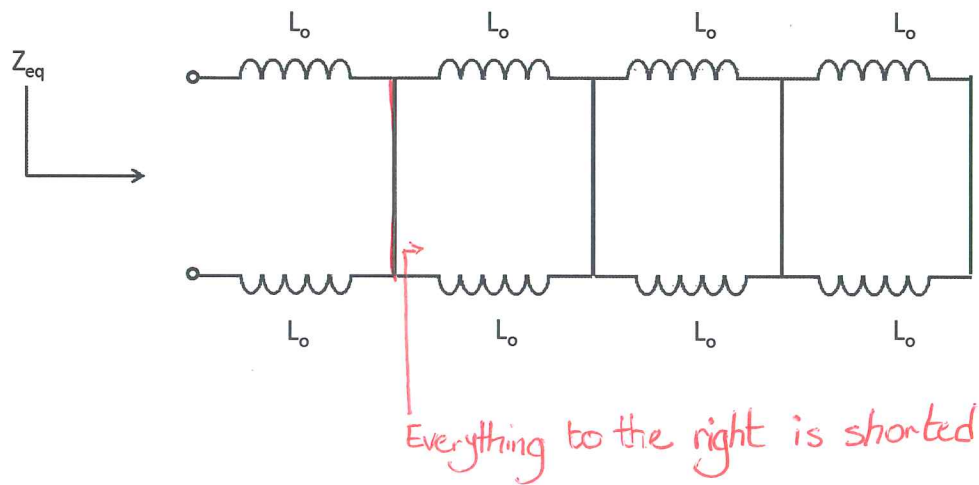


EECS 70A: Network Analysis

Homework #5
Due in discussion section,
Wednesday, May 19, 2010.

Problem1: Solve for Z_{eq} .

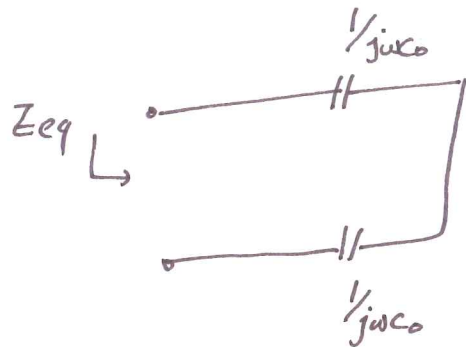
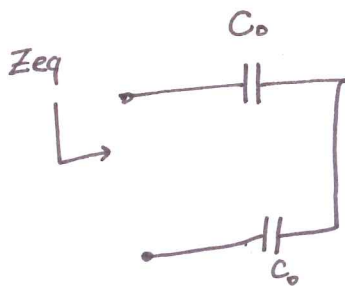
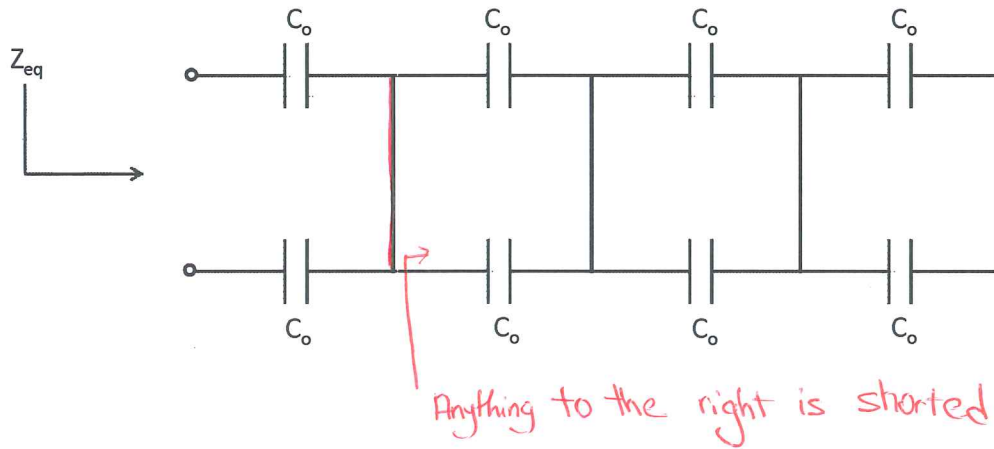


The two inductors are in series.

$$Z_{eq} = j\omega L_0 + j\omega L_0$$

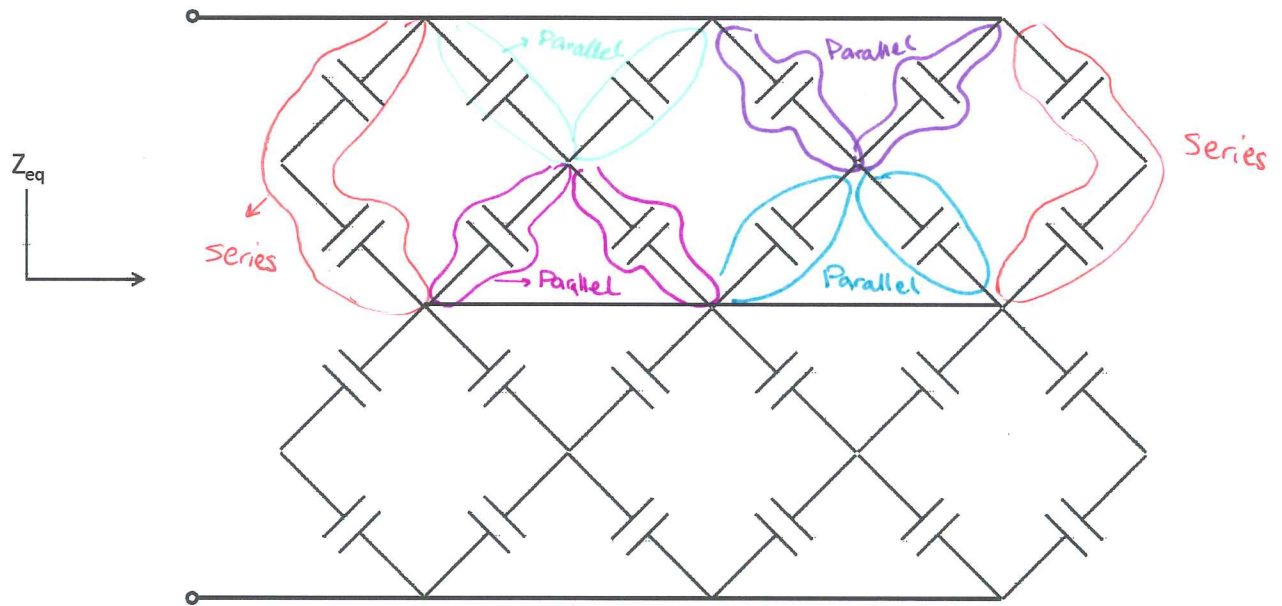
$$Z_{eq} = 2j\omega L_0$$

Problem2: Solve for Z_{eq} .

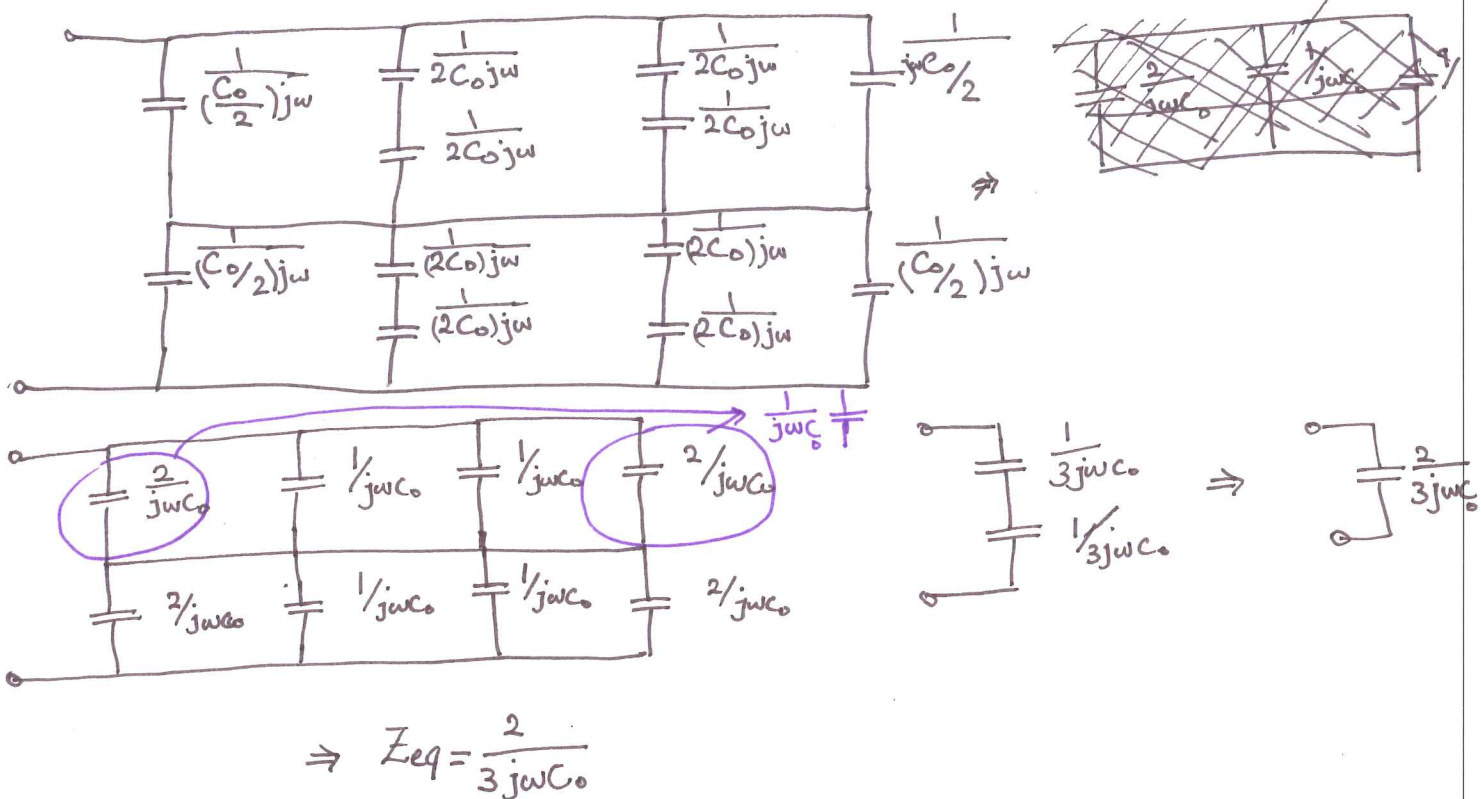


$$Z_{eq} = \frac{1}{j\omega C_o} + \frac{1}{j\omega C_o} = \frac{2}{j\omega C_o}$$

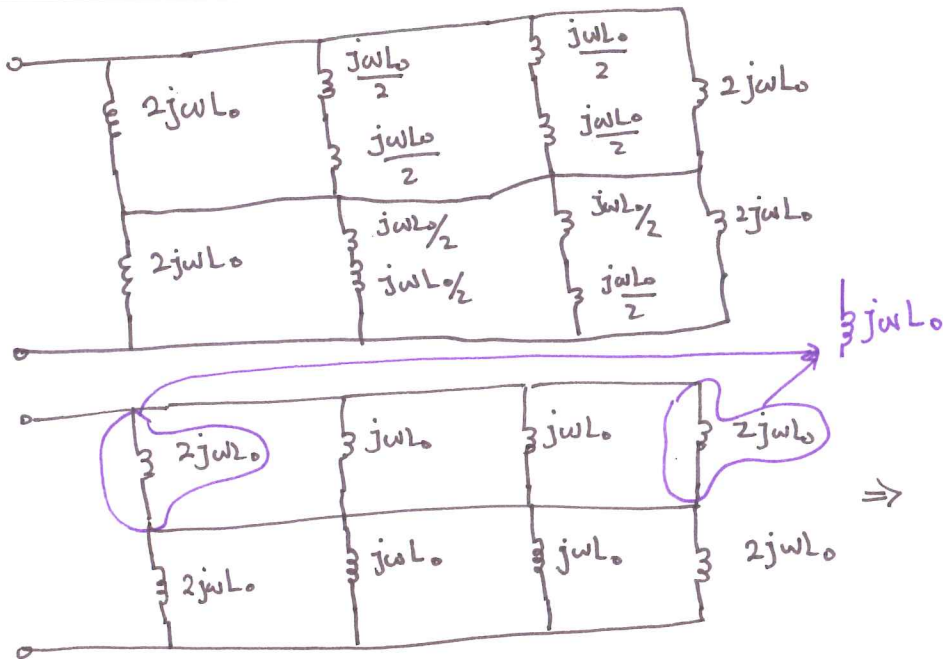
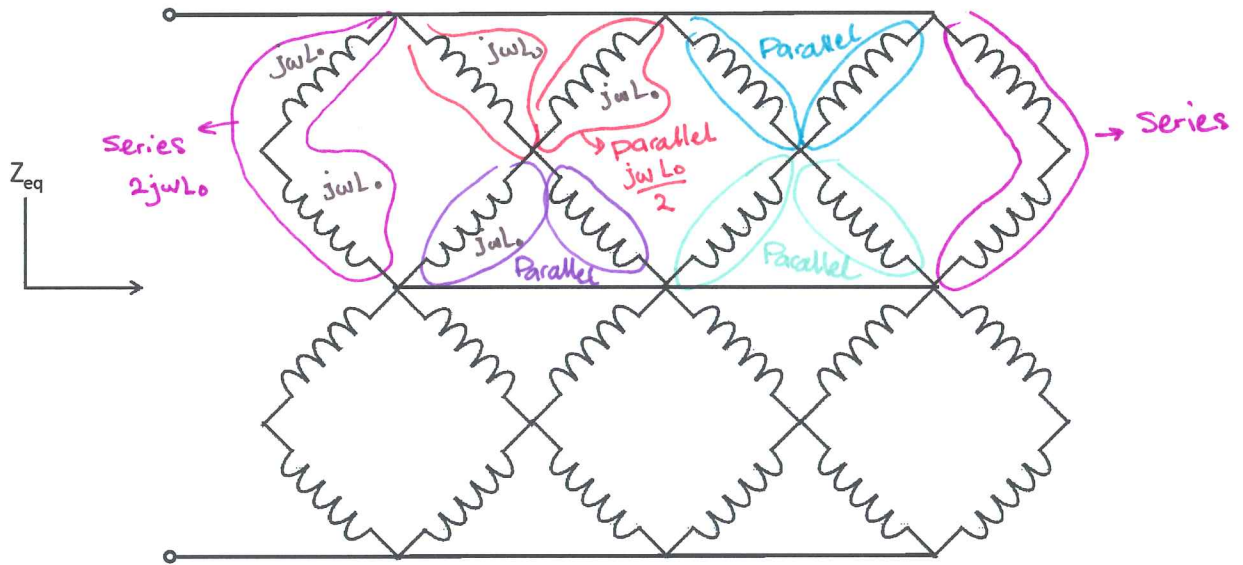
Problem3) Solve for Z_{eq} . All capacitors have same value C_0 .



The bottom part is similar to the top part. We replace the parallel capacitors with $2C_0$ and the series with $\frac{C_0}{2}$, and find each impedance:



Problem4) Solve for Z_{eq} . All inductors have same value L_o .



$$\begin{array}{c}
 \text{---} \text{---} \text{---} \\
 | \quad | \quad | \\
 j\omega L_o \quad j\omega L_o \quad j\omega L_o \\
 | \quad | \quad | \\
 \text{---} \text{---} \text{---}
 \end{array}
 \Rightarrow
 \begin{array}{c}
 \text{---} \\
 | \\
 \frac{2}{3} j\omega L_o \\
 | \\
 \text{---}
 \end{array}
 \Rightarrow
 Z_{eq} = \frac{2}{3} j\omega L_o$$