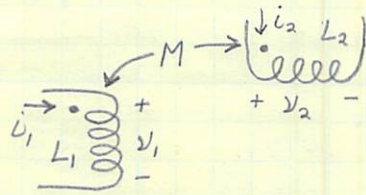


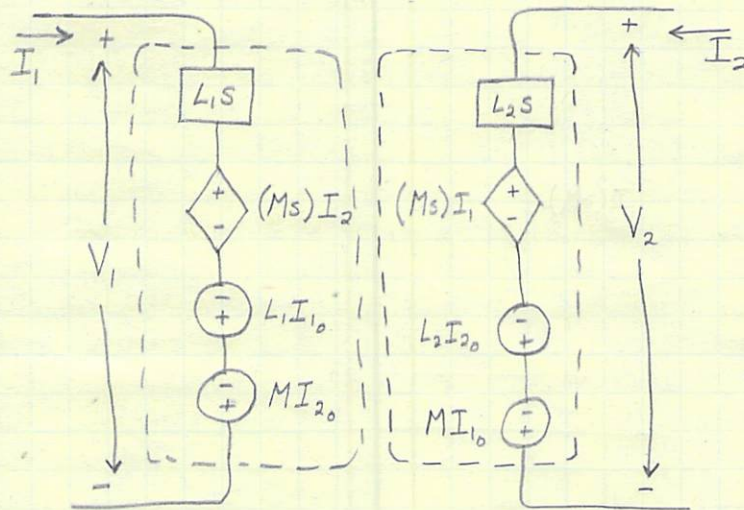
LAPLACE TRANSFORM FOR MAGNETICALLY COUPLED CIRCUITS



$$v_1 = L_1 \frac{di_1}{dt} + M \frac{di_2}{dt}$$

$$V_1 = L_1(sI_1 - I_{1_0}) + M(sI_2 - I_{2_0})$$

$$V_1 = (L_1 s) I_1 + (Ms) I_2 - L_1 I_{1_0} - M I_{2_0}$$



THE V_2, I_2 SIDE IS BASED ON SYMMETRY.

IF THE VOLTAGES AND CURRENT ARE NOT REFERENCED TO THE POLARITY DOTS AS ABOVE, YOU CAN ALWAYS DEFINE A TEMPORARY SET THAT ARE AND THEN PERFORM SUBSTITUTIONS TO TRANSFORM TO THE ACTUAL SET.

NOTE THAT A CHANGE IN POLARITY IS EQUIVALENT TO CHANGING THE SIGN OF M .