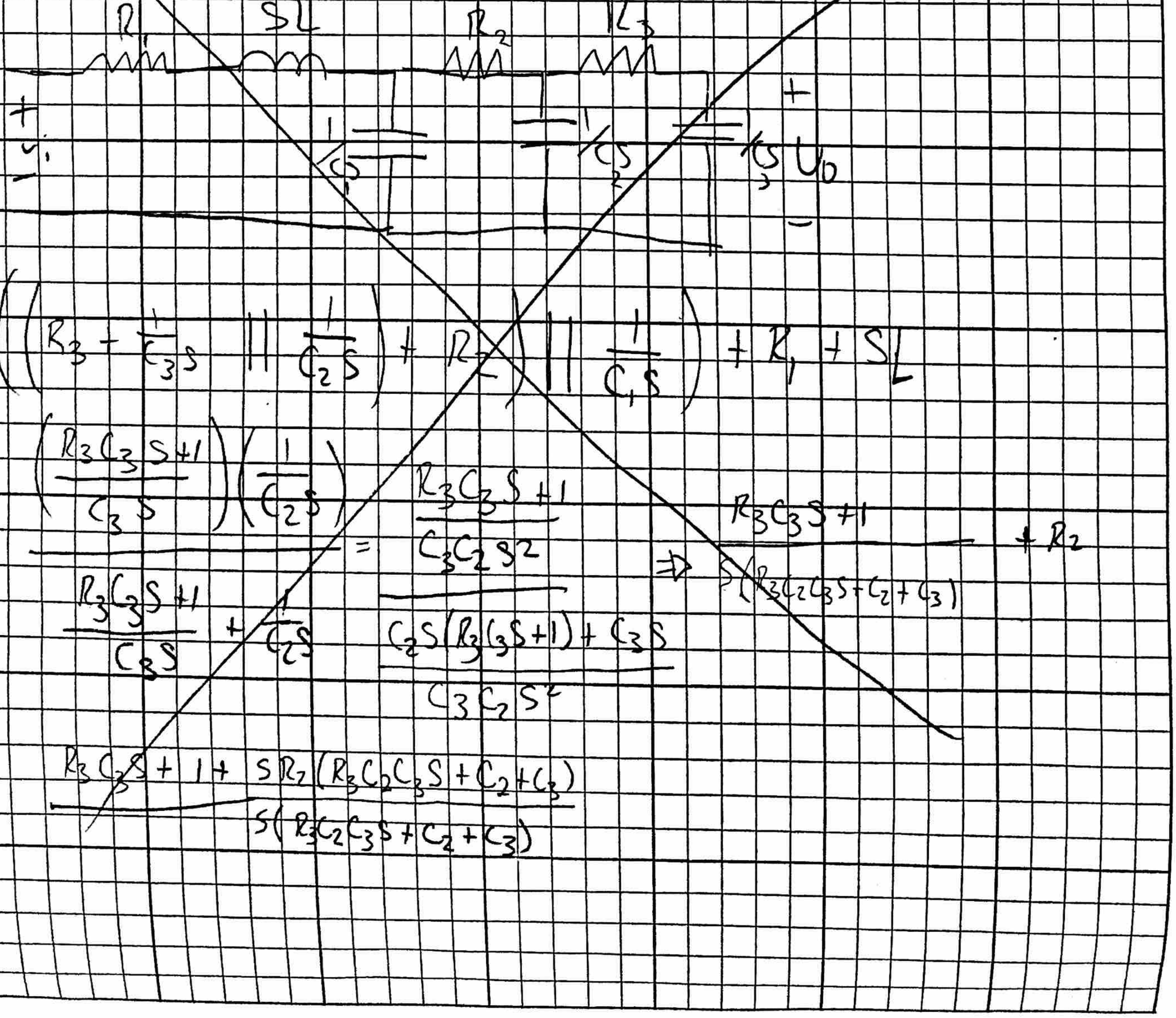
(B) $\dot{x} = \begin{pmatrix} 212.766 & -212.766 & 0 & 212.77\times10^{5} \\ -212.766 & 425.5319 & -212.766 & 0 \\ 0 & -212.766 & 212.766 & 0 \\ -0.5 & 0 & 0 & -250 \end{pmatrix} x + \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0.5 \end{pmatrix} u$

$y = \begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{pmatrix} x$? Assuming all capacitor voltages as outputs

(C) done in Matlab

(C) SOLVING FOR TRANSFER Function



$$\left(\left(\left(R_3 + \frac{1}{C_3 S} \;\middle\|\; \frac{1}{C_2 S}\right) + R_2\right) \;\middle\|\; \frac{1}{C_1 S}\right) + R_1 + SL$$

$$\frac{\left(\frac{R_3C_3S+1}{C_3S}\right)\left(\frac{1}{C_2S}\right)}{\frac{R_3C_3S+1}{C_3S} + \frac{1}{C_2S}} = \frac{\frac{R_3C_3S+1}{C_3C_2S^2}}{\frac{C_2S(R_3(C_3S+1)+C_3S}{C_3C_2S^2}} = \frac{R_3C_3S+1}{R_3C_2C_3S+C_2+C_3}$$

$$\Rightarrow S\left(R_3C_2C_3S+C_2+C_3\right) + R_2$$

$$R_3C_3S + 1 + SR_2(R_3C_2C_3S + C_2 + C_3)$$

$$S(R_3C_2C_3S + C_2 + C_3)$$