

$$\dot{x} = Ax + Bu$$

$$y = Cx + Du$$

$$x_{st}, y_{st}, u_{st}$$

$$\begin{cases} Ax_{st} + Bu_{st} = 0 \\ y_{st} = Cx_{st} + Du_{st} \end{cases}$$

$$y_{st} = Cx_{st} + Du_{st}$$

$$\Delta x = x - x_{st}$$

$$\Delta y = y - y_{st}$$

$$\Delta y = y - y_{st}$$

$$\dot{\Delta x} = \dot{x} = A(\Delta x + x_{st}) + B(\Delta y + y_{st})$$

$$= A\Delta x + B\Delta y + \underbrace{Ax_{st} + Bu_{st}}_{=0}$$

$$= A\Delta x + B\Delta y$$

$$\Delta y = C\Delta x + D\Delta y$$

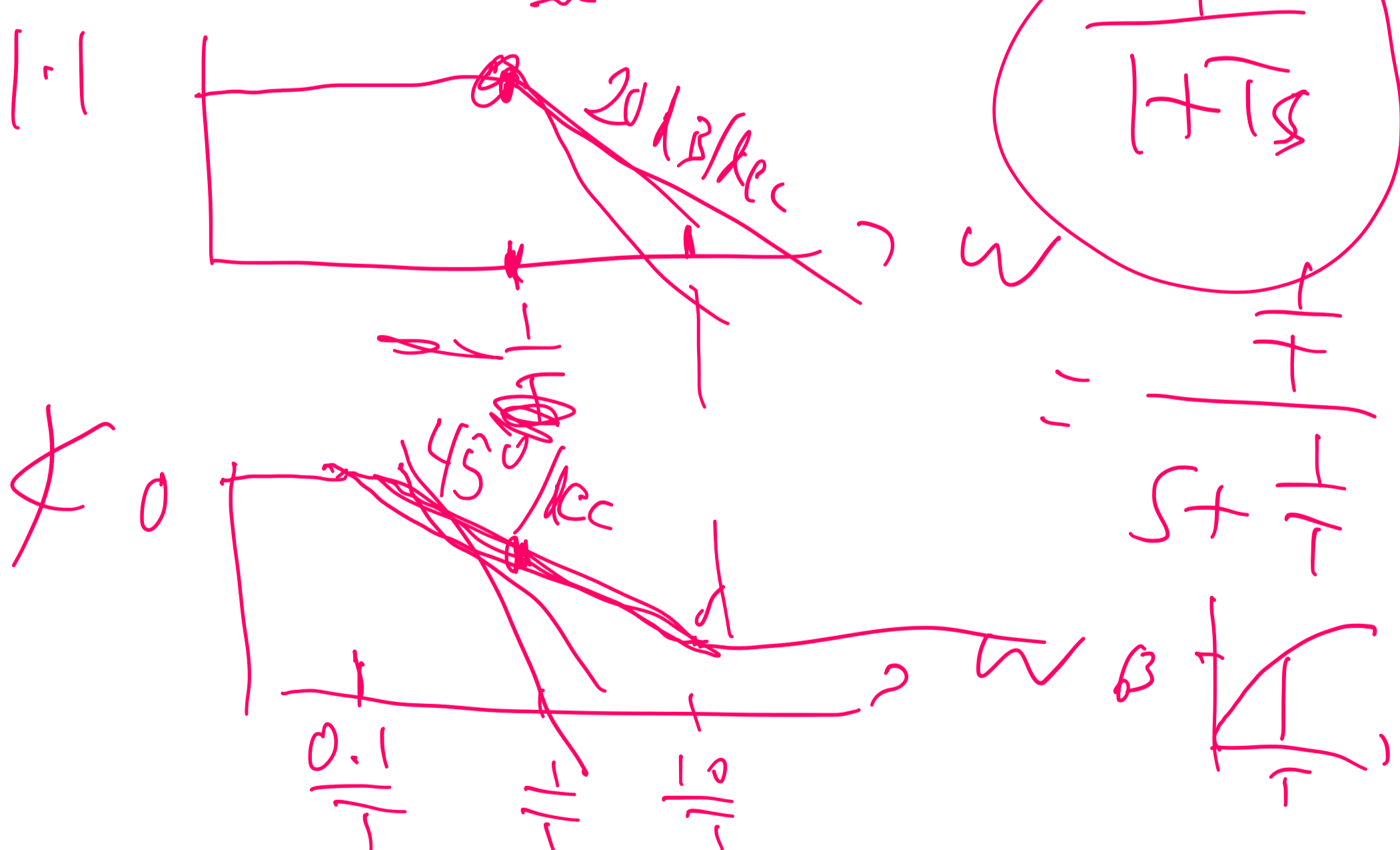
$$|S| = \left| \frac{1}{1+L} \right| = \frac{1}{|1+L|} < \varepsilon$$

$$|1+L| > \frac{1}{\varepsilon}$$

$$\frac{1}{\varepsilon} < |1+L| < 1+|L|$$

$$|1+L| > \frac{1}{\varepsilon}$$

$$|L| > \frac{1}{\varepsilon} - 1 \approx \frac{1}{\varepsilon}$$



$$e^{jx} = \cos x + j \sin x$$

$$e^{-jx} = \cos x - j \sin x$$

$$e^{-sT} = \frac{e^{-s\frac{T}{2}}}{e^{s\frac{T}{2}}} \approx \frac{1 - s\frac{T}{2}}{1 + s\frac{T}{2}}$$

Padé

$$s = j\omega$$