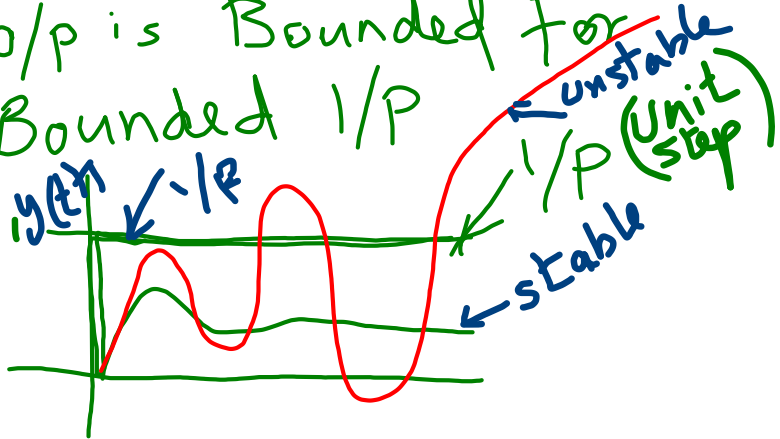


$$R(s) \rightarrow \boxed{\frac{s+1}{s^2+5s+7}} \rightarrow Y(s)$$

stable system

o/p is Bounded for Bounded i/p

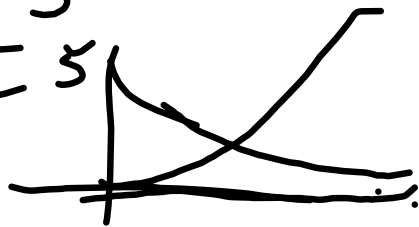


$$G(s) = \frac{5}{s+3}$$

$$s = -3 \quad -3t \quad 5$$

$$= 5e^{-3t}$$

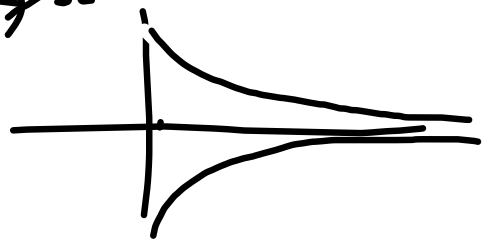
$$= 5(2.7)^{-t} \quad t=0$$



$$U(s) \rightarrow \boxed{H(s)} \rightarrow Y(s)$$

$$\frac{Y(s)}{U(s)} = H(s)$$

$$\frac{5}{(2.7)^{st}} = 5$$



EX

$$G(s) = \frac{3}{s+5}$$

for a Unity Feedback system, the over all T.F will be

1- $\frac{3}{s+5}$



2- $\frac{5}{(s+3)(s+1)}$

3- $\frac{3}{s+2}$

4- $\frac{5}{s+8}$

5- $\frac{3}{s+8}$



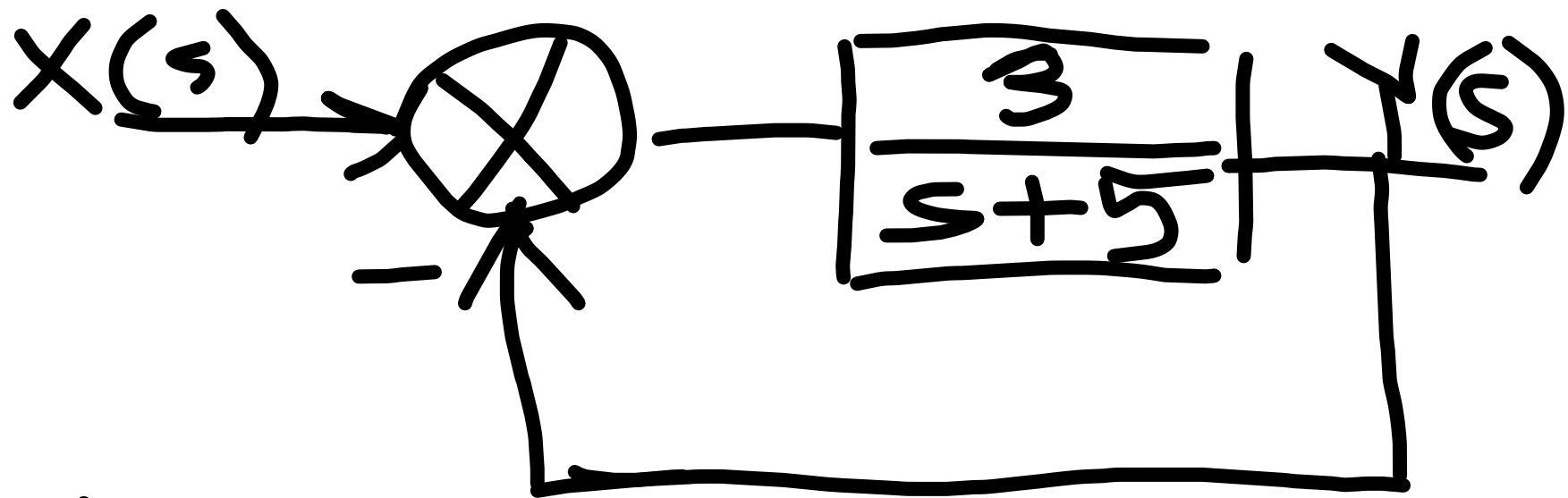
$$G(s) = \frac{3}{s+5}$$

$$T(s) = \frac{G(s)}{1 + G(s)H(s)}$$

Unity closed Loop $\rightarrow H(s) = 1$

Over all T.F. $\hat{=} T(s) = \frac{3}{1 + \frac{3}{s+5}} = 1$

$$= \frac{3}{\frac{(s+5)+3}{s+5}} = \frac{3}{s+8}$$



$$\frac{Y(s)}{X(s)} = T(s) = \frac{G}{1+G}$$

$$1 + \frac{3}{s+5} = \frac{s+5}{s+5} + \frac{3}{s+5} = \frac{s+8}{s+5}$$