

Gabriel Barbosa Pagomini - 10772539 - Modelagem aula 03/11

① $Y = (I + GH)^{-1} GR$; $Y = TR \rightarrow T = (I + GH)^{-1} G$

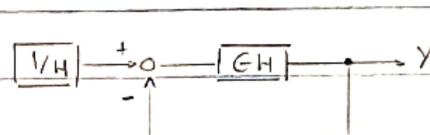
. Block : $Z = HY \rightarrow R - E = HY \rightarrow R - G^{-1}Y = HY \rightarrow R = (G^{-1} + H)Y$
 $\rightarrow R = (I + HG)G^{-1}Y \rightarrow (I + HG)^{-1}R = G^{-1}Y \rightarrow Y = G(I + HG)^{-1}R \rightarrow$
 $\therefore T = G(I + HG)^{-1}$

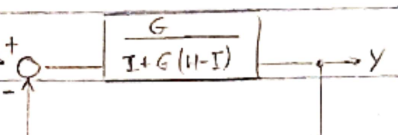
. Provando : $G(I + HG)^{-1} = (I + GH)^{-1}G = G(I + L)^{-1}$, com $L = HG$

② $Z = HY \rightarrow Z = HGE = HG(R - Z) \rightarrow HGR = (I + HG)Z \rightarrow (I + HG)^{-1}HG = ZR^{-1}$

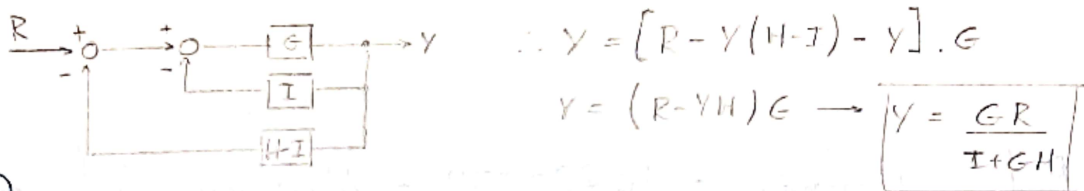
. $Y = GE \rightarrow H^{-1}Z = G(R - Z) \rightarrow GR = (H^{-1} + G)Z = (I + GH)H^{-1}Z \rightarrow$
 $\therefore ZR^{-1} = H(I + GH)^{-1}G$

. Comparando : $Z = L = \frac{GH}{I + L} = \frac{HG}{I + HG} \rightarrow Z = HY = \frac{HG(R - Z)}{I + HG} \rightarrow \frac{Z}{R} = \frac{HG}{I + HG}$
 c/ $L = HG$

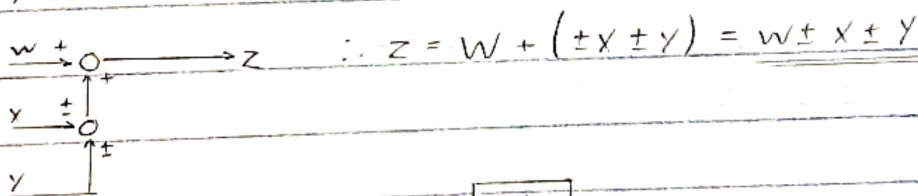
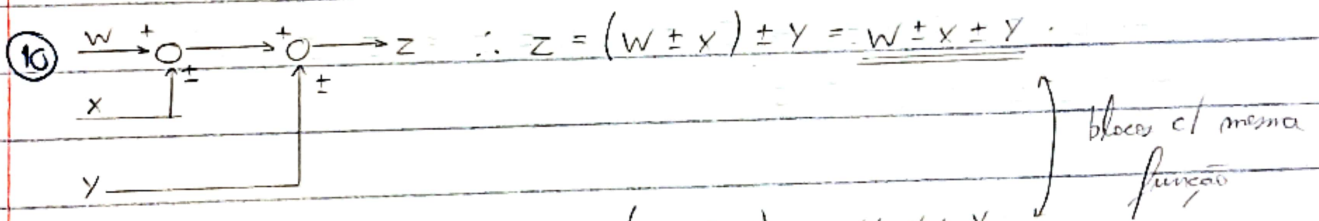
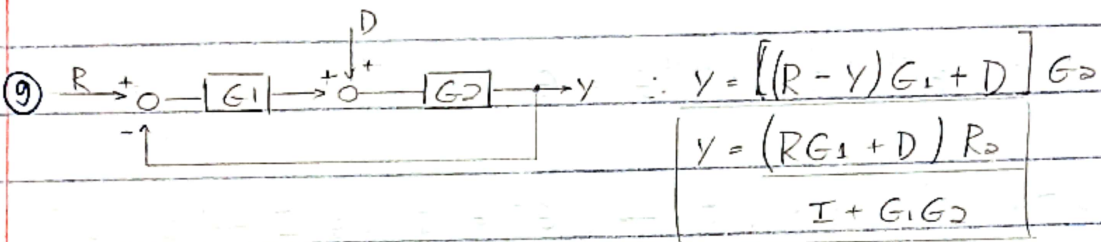
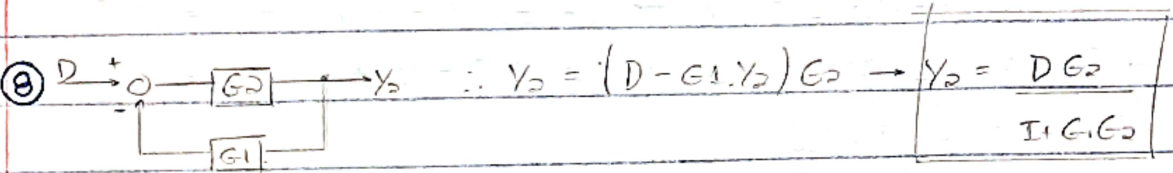
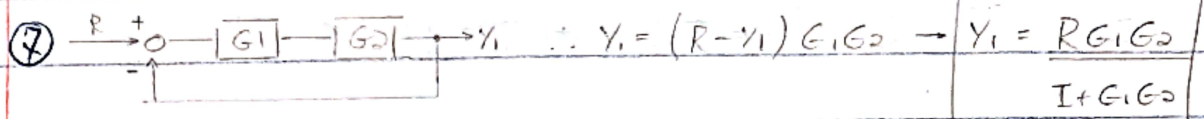
③  $\therefore Y = \left(\frac{R}{H} - Y\right)GH \rightarrow Y = GR - YGH$
 $\therefore Y = \frac{GR}{I + GH}$

④  $\therefore Y = \frac{(R - Y) \cdot G}{I + G(H - I)} \rightarrow Y[I + G(H - I)] = GR - GY$
 $\therefore Y[I + GH - G + G] = GR \rightarrow Y = \frac{GR}{I + GH}$

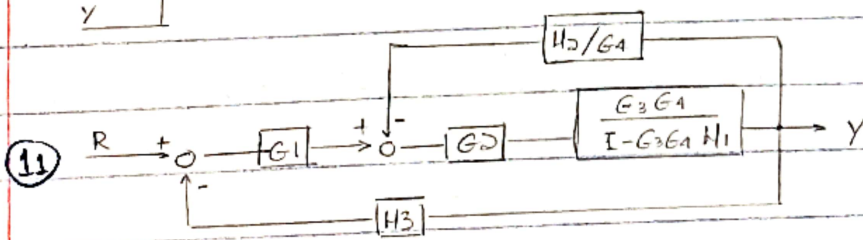
⑤  $\therefore Y = (R - Y - Y(H - I)) \cdot G$
 $Y = (R - YH)G \rightarrow Y = \frac{GR}{I + HG}$



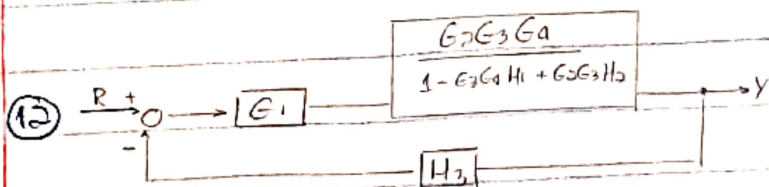
⑥



bloques e/ mesma función



$$\therefore Y = \frac{(R - YH_3)G_1 - H_2Y}{G_4} \cdot \frac{G_2G_3G_4}{I - G_3G_4H_1} \rightarrow Y = \frac{RG_1G_2G_3G_4}{I - H_1G_3G_4 + H_2G_2G_3 + H_3G_1G_2G_3G_4}$$



$$\therefore Y = (R - H_3Y)G_1 \cdot \frac{G_2G_3G_4}{I - G_3G_4H_1 + G_2G_3H_2} \rightarrow Y = \frac{RG_1G_2G_3G_4}{I - H_1G_3G_4 + H_2G_2G_3 + H_3G_1G_2G_3G_4}$$