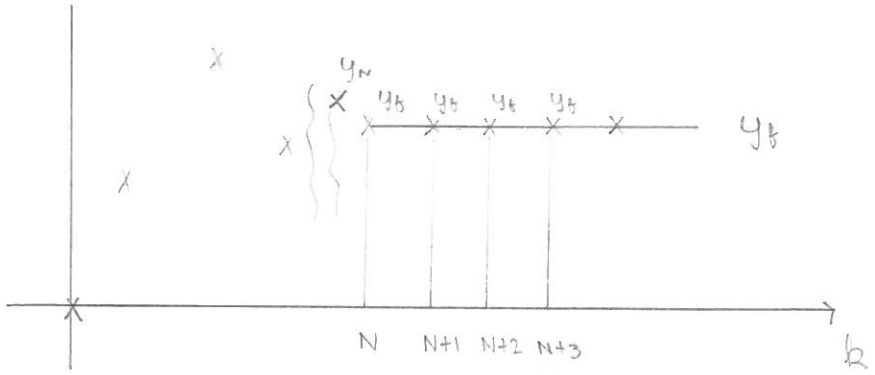
13/10/08

Control P27



$$Y(z) = \underbrace{y_0 + y_1 z^{-1} + y_2 z^{-2} + \dots + y_N z^{-N}}_{Y_1(z)} + \underbrace{y_f z^{-(N+1)} + y_f z^{-(N+2)}}_{y_f z^{-(N+1)}\left[1 + z^{-1} + z^{-2} + z^{-3} + \dots\right]}$$

$$1 + z^{-1} + z^{-2} + \dots \overset{GP}{=} \frac{z}{z-1}$$

$$Y(z) = Y_1(z) + y_f z^{-(N+1)} \frac{z}{z-1}$$

$$(z-1)\,Y(z) = (z-1)\,Y_1(z) + y_f z^{-N}$$

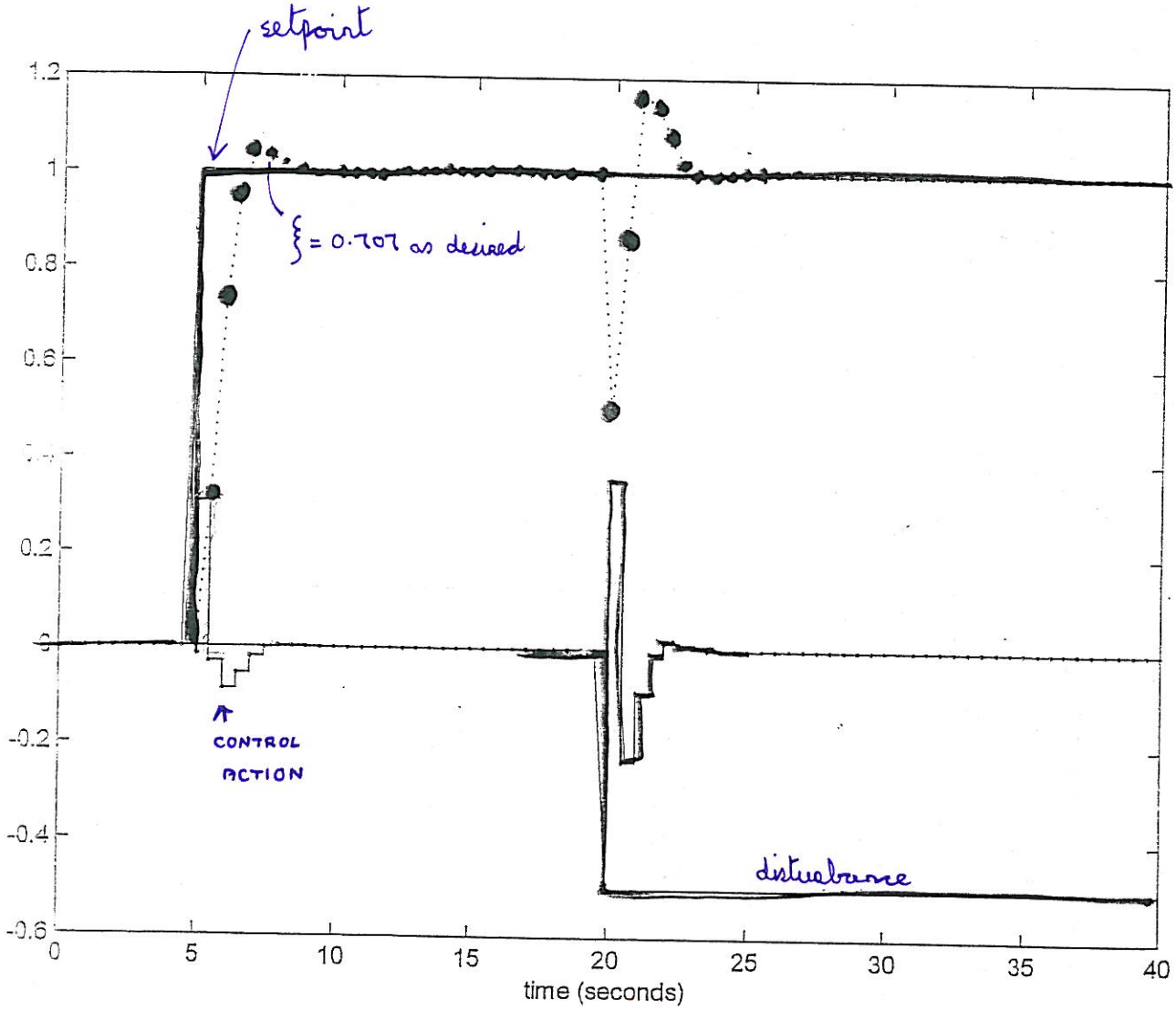
$$\lim_{z \to 1} (z-1)\,Y(z) = \lim_{z \to 1} (z-1)\,Y_1(z) + \lim_{z \to 1} y_f z^{-N}$$

$(z-1) \to 0$

$$\lim_{z \to 1} (z-1)\,Y(z) = y_f$$

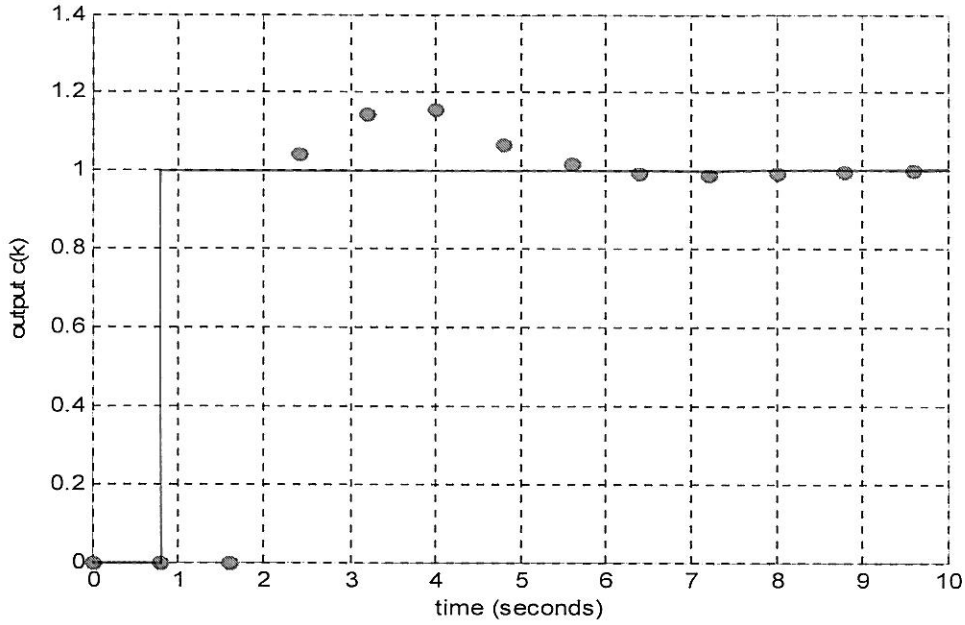
Brian

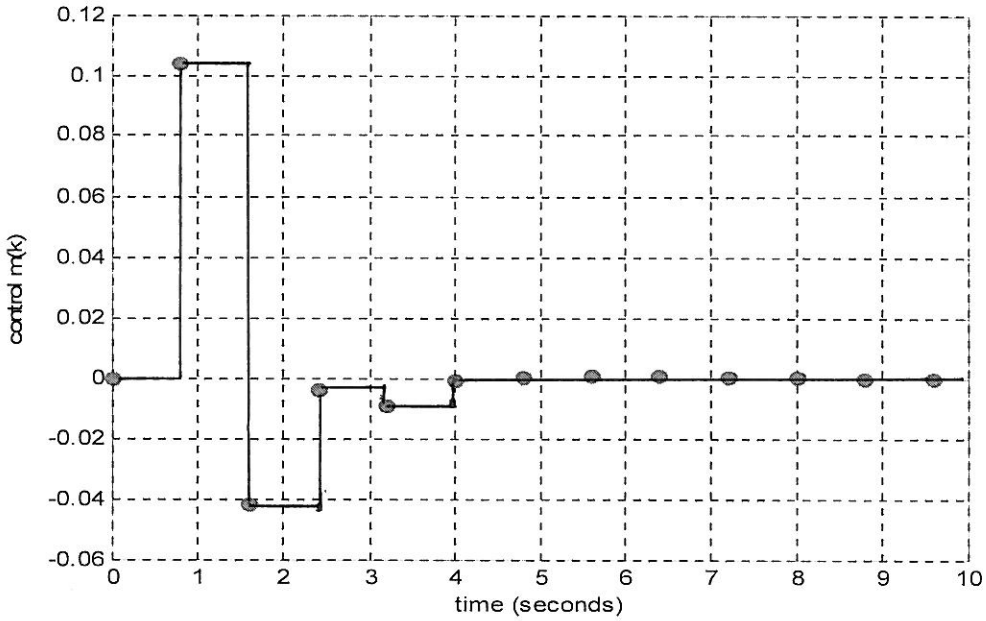
26/11/08 Brian Fitzgibbon



zero ess for a constant disturbance because G(z) was "TYPE 1"
1 free integrator pole @ $z = 1$

19/11/08
Brian Fitzgibbon





Notes on Matlab:

rlocus:

pzmap:

c2d:

d2c: