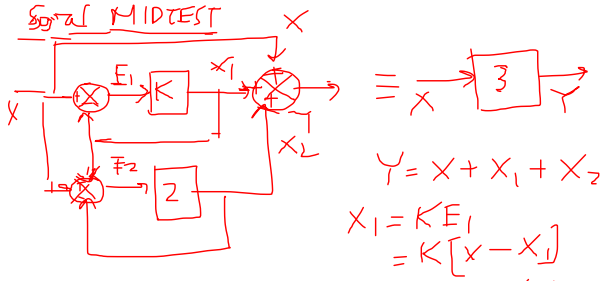
* Mengapa/Untuk apa kita memodelkan sistem ???

Soal MIDTEST



$Y = X + X_1 + X_2$

$X_1 = KE_1$
$= K[X - X_1]$
$= KX - KX_1$
$X_1 + KX_1 = KX$
$[1+K]X_1 = KX$
$X_1 = \frac{K}{1+K}X$

$\dot{X}_2 = 2F_2$
$= 2[X + X_1 - X_2]$
$= 2X + 2X_1 - 2X_2$
$3X_2 = 2X + 2\left[\frac{K}{1+K}\right]X = \left[2 + \frac{2K}{1+K}\right]X$
$= \frac{2+2K+2K}{1+K}X$
$= \frac{2+4K}{1+K}X$

$X_2 = \frac{2+4K}{3(1+K)}X$

$Y = X + \frac{K}{1+K}X + \frac{2+4K}{3(1+K)}X$
$= \left[\frac{3(1+K)+3K+2+4K}{3(1+K)}\right]X$
$= \frac{5+10K}{3+3K}X = 3X \longrightarrow$

$5+10K = 9+9K$
$K = 4$

Pada titik $P(0,0)$, $a = 10$
Linearisasi
$(y - y_p) = a_p(x - x_p)$
$y = 10x$
$y(t) = 10x(t) \longrightarrow$
* LINIER

Pada titik $Q(\pi, 0)$, $a = -10$
$(y - y_q) = a_q(x - x_q)$
$y - 0 = -10(x - \pi)$
$y = -10x + 10\pi$
$y(t) = -10x(t) + 10\pi$
* TIDAK LINIER

BAB II Pemodelan SISTEM LINIER

* Pengantar → URGENSI
* Pemodelan WATAK ALIH (Transfer Characteristics)
* Pemodelan NISBAH ALIH (Transfer Function)
* Pemodelan RUANG KEADAAN (state space)