

b) theta 87°

$$\frac{5,623s^2 + 2,024e08}{s^2 + 628s + 3,6e07} = \frac{y}{x}$$

$$y(s^2 + 628s + 3,6e07) = x(5,623s^2 + 2,024e08)$$

$$\frac{d^2y}{dt^2} + 628\frac{dy}{dt} + 3,6e07y = 5,623\frac{d^2x}{dt^2} + 2,024e08x$$

theta 60°

$$\frac{5,623s^2 + 2,024e08}{s^2 + 6000s + 3,6e07} = \frac{y}{x}$$

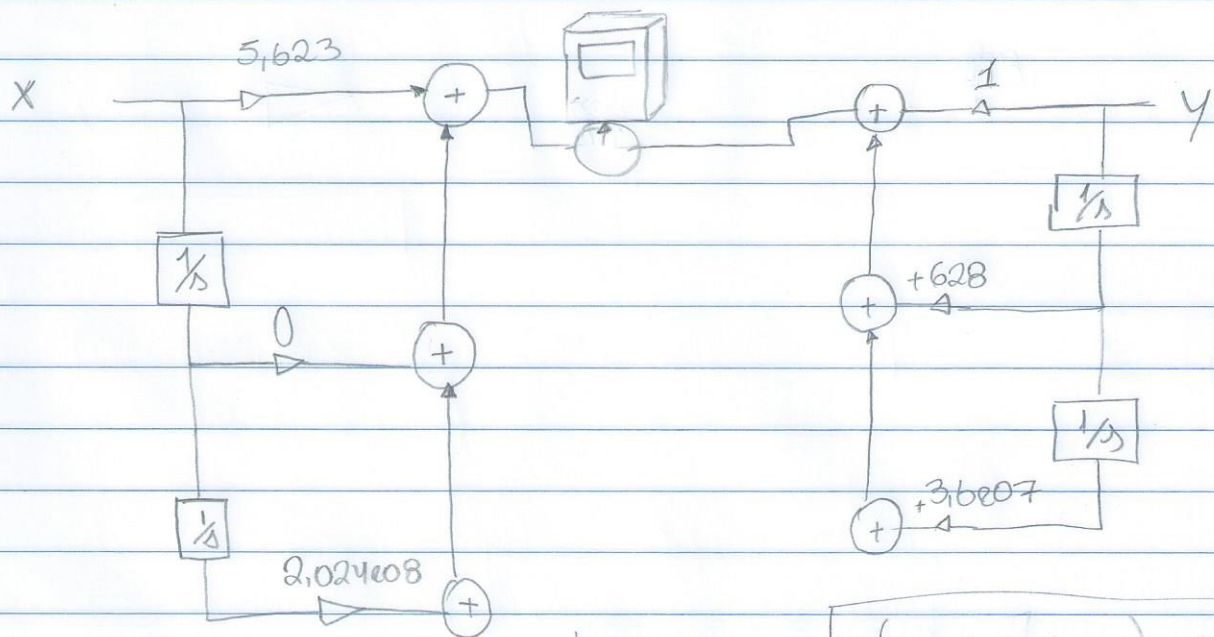
$$y(s^2 + 6000s + 3,6e07) = x(5,623s^2 + 2,024e08)$$

$$\frac{d^2y}{dt^2} + 6000\frac{dy}{dt} + 3,6e07y = 5,623\frac{d^2x}{dt^2} + 2,024e08x$$

c)  $H_1 = \frac{b_0 s^2 + b_1 s + b_2}{s^2 + a_0 s + a_1} \Rightarrow \theta = 87^\circ$

$$= \left( \frac{b_0 + b_1/s + b_2/s^2}{1 + a_0/s + a_1/s^2} \right) \Rightarrow y \left( 1 + a_0/s + a_1/s^2 \right) = x \left( b_0 + b_1/s + b_2/s^2 \right)$$

$a_0 = 628$        $b_0 = 5,623$   
 $a_1 = 3,6e07$      $b_1 = 0$   
 $b_2 = 2,024e08$



↓ OTIMIZADO  $\Rightarrow \boxed{X(b_0 + b_1/s + b_2/s^2) - Y(a_0/s + a_1/s^2)} = 1Y$

