

Part (a)

$$\frac{Y(s)}{R(s)} = \frac{\left(\frac{K_p}{K_i}s + 1\right)}{\frac{1}{3K_i}s^2 + \left(\frac{1 + 3K_p}{3K_i}\right)s + 1}$$

Part (b)

$$K_p = 5.03$$

$$K_i = 103.8$$

Part (c)

