

file: c:\temp\courses\l01\610\min_plot.mcd RWN 09/17/01

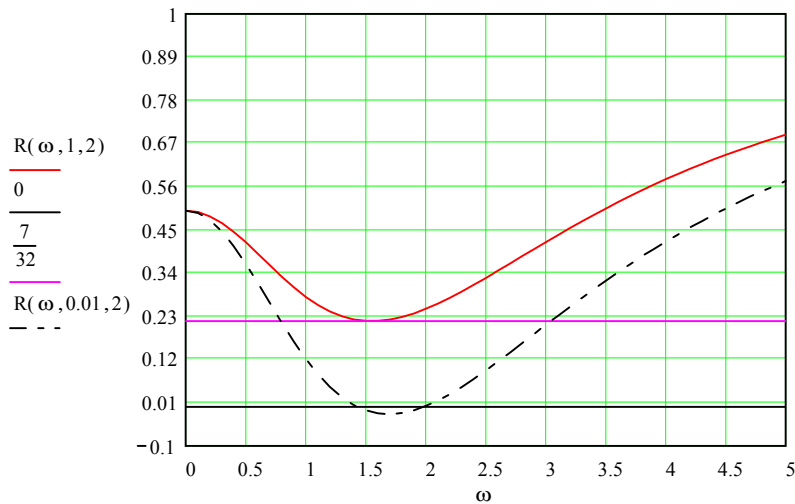
$$a := 1 \quad b := 2$$

$$y(s, a, b) := \frac{(s^2 + a \cdot s + b)}{(s + 2)^2}$$

$$R(\omega, a, b) := \frac{[\omega^4 - (4 - 4 \cdot a + b) \cdot \omega^2 + 4 \cdot b]}{(\omega^2 + 4)^2}$$

$$\omega_{mx} := 5$$

$$\omega := 0, 0.1.. \omega_{mx}$$



$$s_{min} := j \cdot \sqrt{\left(\frac{12}{5}\right)} \quad r_{min} := \frac{7}{32} \quad r_{min} = 0.219$$

$$y(s_{min}, 1, 2) = 0.219 + 0.121i$$

$$y_m(s) := y(s, 1, 2) - r_{min} \Rightarrow \frac{(s^2 + s + 2)}{(s + 2)^2} - \frac{7}{32}$$

$$k := 6 \quad y_k := \frac{15}{32} \quad y_k = 0.469$$

$$yR(s) := y_k \cdot \frac{(k \cdot y_k - s \cdot y_m(s))}{(k \cdot y_m(s) - s \cdot y_m(k))} \Rightarrow \frac{15}{32} \cdot \frac{\left[\frac{45}{16} - s \cdot \left[\frac{(s^2 + s + 2)}{(s + 2)^2} - \frac{7}{32} \right] \right]}{\left[6 \cdot \frac{(s^2 + s + 2)}{(s + 2)^2} - \frac{21}{16} - \frac{15}{32} \cdot s \right]}$$

$$yR(s) := \left(\frac{15}{32} \right) \cdot \left[\frac{1}{3} \cdot \frac{(25 \cdot s^2 + 64 \cdot s + 60)}{(5 \cdot s^2 + 12)} \right]$$

$$yR(s) := \left(\frac{25}{32} \right) + \left(\frac{2}{5} \right) \cdot \frac{s}{\left[s^2 + \left(\frac{12}{5} \right) \right]}$$