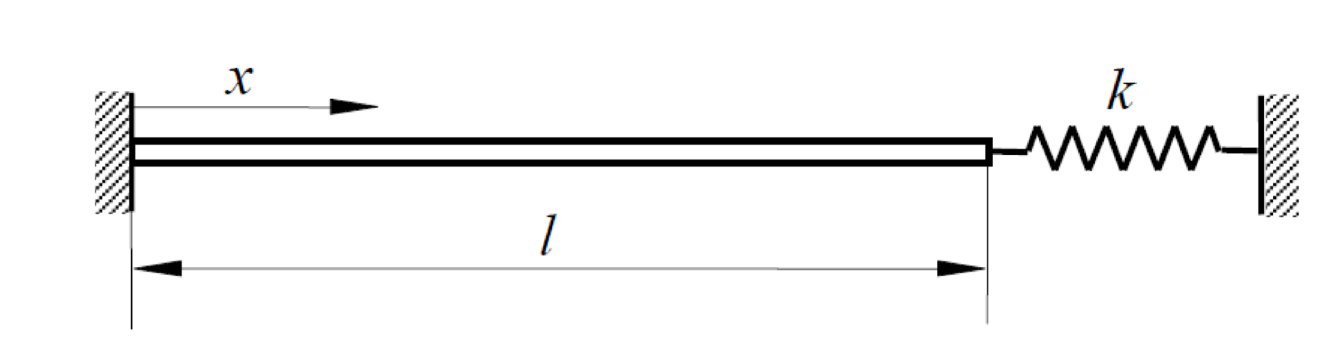




$\textcolor{green}{w} \quad l := 1.5$

$d := 10 \cdot 10^{-3} = 0.01$

$A_{sez} := \frac{\pi \cdot d^2}{4} = 7.854 \times 10^{-5}$

$E := 206000 \cdot 10^6 = 2.06 \times 10^{11}$

$\rho := 7800$

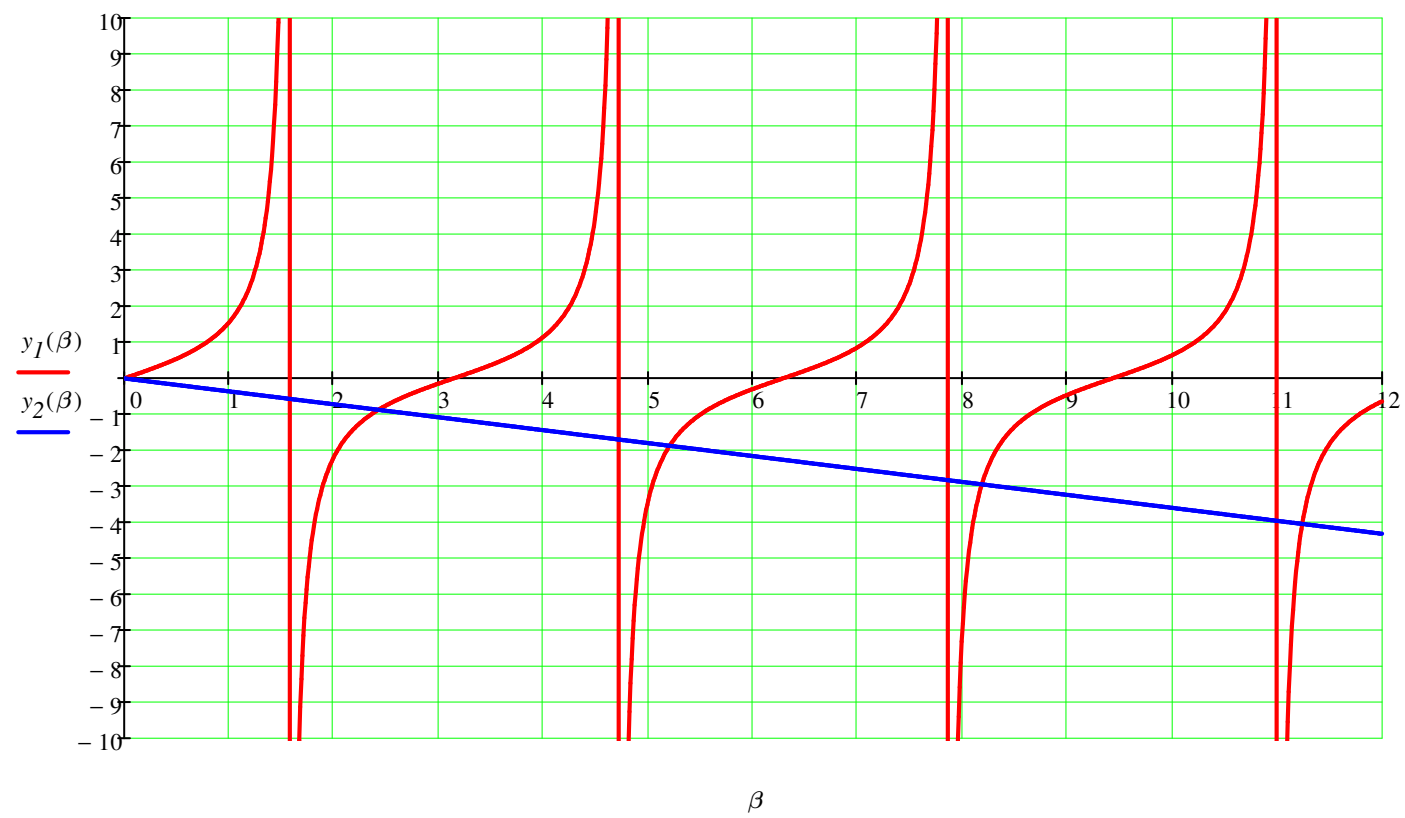
$\textcolor{green}{w} \quad c := \sqrt{\frac{E}{\rho}} = 5139.091$

$k_{assiale} := \frac{E \cdot A_{sez}}{l} = 1.079 \times 10^7$ Rigidezza assiale della barra

$k := 3 \cdot 10^7$

$y_1(\beta) := \tan(\beta)$ $b := \frac{E \cdot A_{sez}}{k \cdot l} = 0.36$ $y_2(\beta) := -b \cdot \beta$

$\beta := 0,0.01..12$ $FS := 10$



$$F(\beta) := \tan(\beta) + b \cdot \beta$$

$$\beta := 2$$

$$\beta_1 := \text{root}(F(\beta), \beta) = 2.425$$

$$\beta := 5$$

$$\beta_2 := \text{root}(F(\beta), \beta) = 5.203$$

$$\beta := 8$$

$$\beta_3 := \text{root}(F(\beta), \beta) = 8.182$$

$$\beta := 11$$

$$\beta_4 := \text{root}(F(\beta), \beta) = 11.238$$

	rad/s	Hz
$\beta_1 = 2.425$	$\omega_1 := \frac{c}{l} \cdot \beta_1 = 8306.868$	$f_1 := \frac{\omega_1}{2 \cdot \pi} = 1322.079$
$\beta_2 = 5.203$	$\omega_2 := \frac{c}{l} \cdot \beta_2 = 17826.764$	$f_2 := \frac{\omega_2}{2 \cdot \pi} = 2837.218$
$\beta_3 = 8.182$	$\omega_3 := \frac{c}{l} \cdot \beta_3 = 28030.912$	$f_3 := \frac{\omega_3}{2 \cdot \pi} = 4461.258$
$\beta_4 = 11.238$	$\omega_4 := \frac{c}{l} \cdot \beta_4 = 38502.721$	$f_4 := \frac{\omega_4}{2 \cdot \pi} = 6127.898$