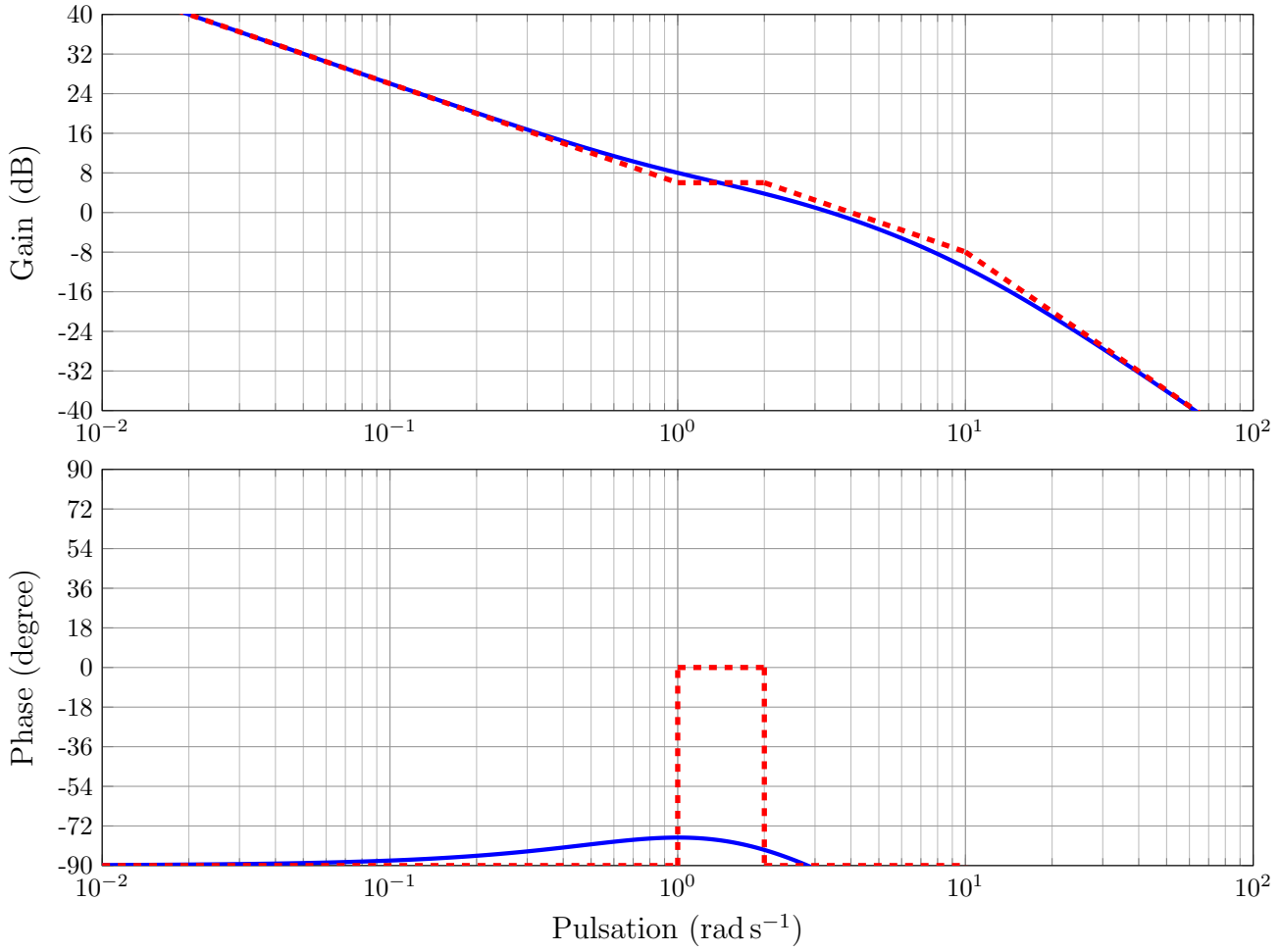


$$H(p) = 2 \frac{(p+1)}{(p+0)(p+10)(p+2)}$$



Fonctions réelles du gain et du déphasage

$$G(\omega) = |H(j\omega)| = \frac{40 \left(\sqrt{1 + \left(\frac{\omega}{\omega_1} \right)^2} \right)}{\omega \sqrt{1 + \left(\frac{\omega}{\omega_2} \right)^2} \sqrt{1 + \left(\frac{\omega}{\omega_3} \right)^2}}$$

$$G_{dB}(\omega) = 32 + 10 \log \left(1 + \left(\frac{\omega}{\omega_1} \right)^2 \right) + 20 \log \omega - 10 \log \left(1 + \left(\frac{\omega}{\omega_2} \right)^2 \right) - 10 \log \left(1 + \left(\frac{\omega}{\omega_3} \right)^2 \right)$$

$$\phi(\omega) = \arg H(j\omega) = -90 + \arctan \left(\frac{\omega}{\omega_1} \right) - \arctan \left(\frac{\omega}{\omega_2} \right) - \arctan \left(\frac{\omega}{\omega_3} \right)$$

Quelques valeurs particulières calculées

| ω (rad s ⁻¹) | Gain (dB) | Phase (°) |
|---------------------------------|------------------|-------------------|
| 0.01000 | 46.02092 | -89.77083 |
| 0.02512 | 38.02258 | -89.42458 |
| 0.06310 | 30.03333 | -88.55813 |
| 0.15849 | 22.10008 | -86.43306 |
| 0.39811 | 14.48389 | -81.82971 |
| 1.00000 | 8.01859 | -77.27564 |
| 2.00000 | 3.80907 | -82.87498 |
| 2.51189 | 2.28199 | -87.28087 |
| 6.30957 | -5.72227 | -113.66853 |
| 10.00000 | -11.09622 | -129.40066 |
| 15.84893 | -17.46556 | -144.16793 |
| 39.81072 | -32.23273 | -164.46259 |
| 100.00000 | -48.00332 | -173.71658 |