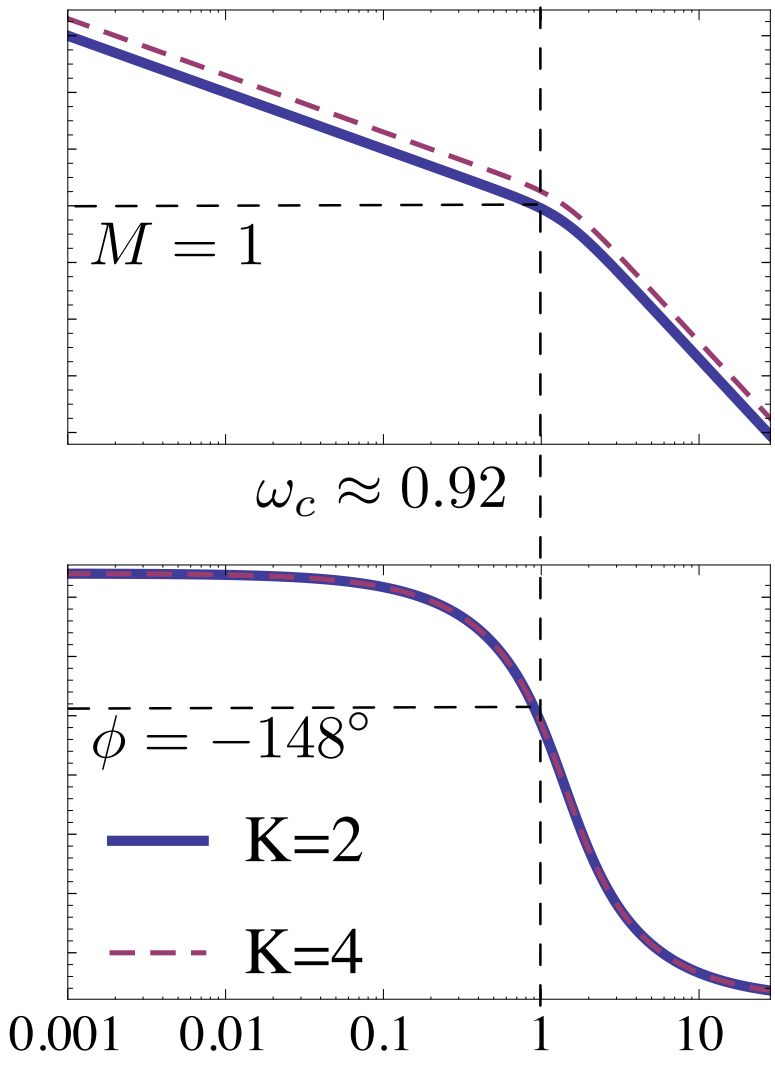
Phase Margin

Our example: $G(s) = \dfrac{1}{s(s^2+2s+2)}$, $K = 2$ (stable)



Phase margin (PM) is the amount by which the phase at the crossover frequency ω_c differs from $180°$ mod $360°$

To find PM, we need to inspect ϕ at $\omega = \omega_c$

In this example:

at $\omega_c \approx 0.92$

$\phi = -148°$,

so PM $= (-148°) - (-180°) = 32°$

(in practice, want PM $\geq 30°$)