Bode plot of Underdamped Second Order System $\dfrac{\omega_n^2}{(s^2 + 2\,\xi\,\omega_n\,s + \omega_n^2)}$

Magnitude

$1/(2\xi)$

1

-2

ω_n

Phase

0°

Approximation of phase plot as a staircase

Actual phase plot

-90°

-180°

10^1 ω_n 10^2 10^3

Frequency (rad/sec)
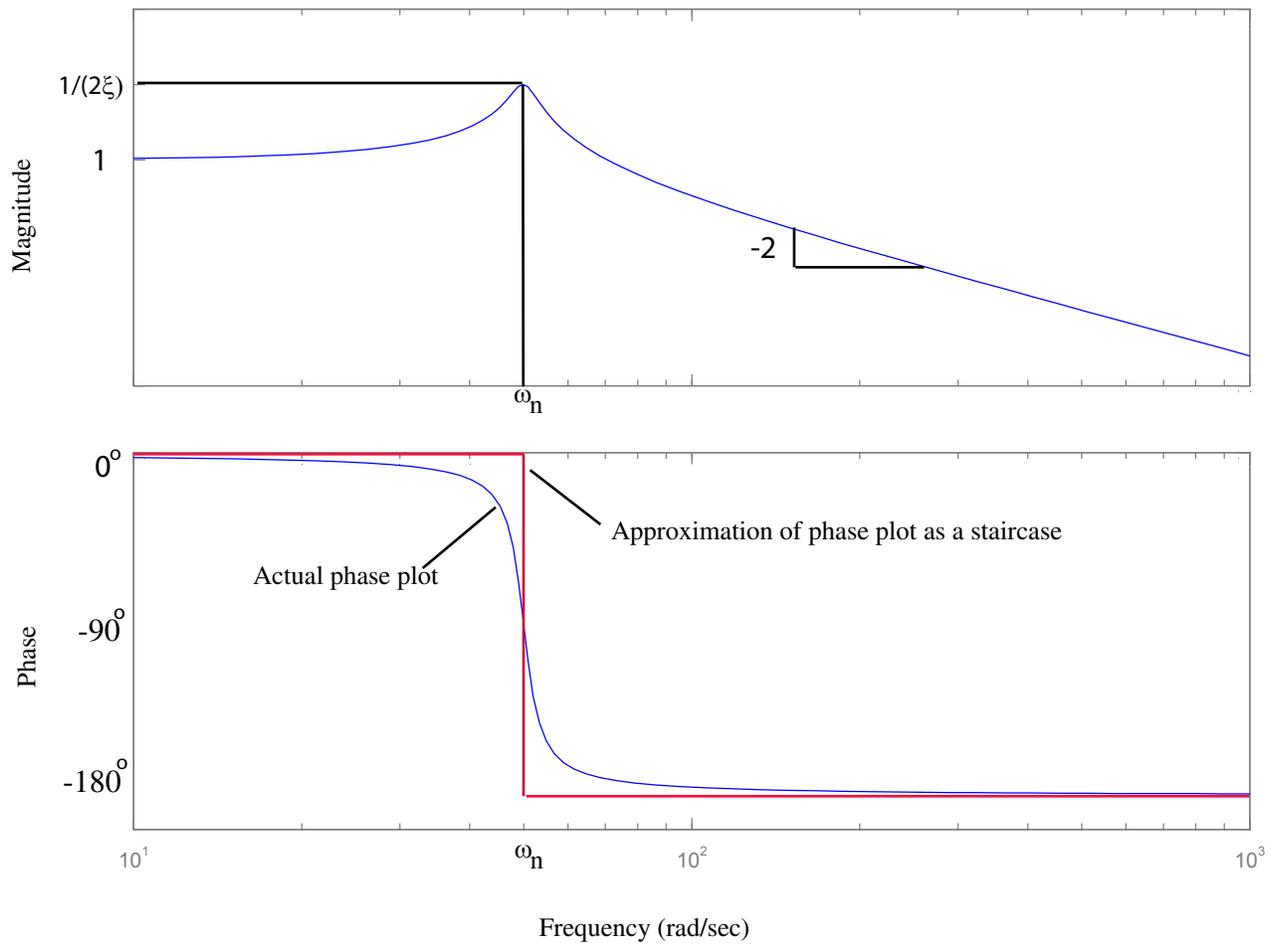
Magnitude and Frequency have been plotted on log scale; Phase has been plotted on linear scale