A mass of 1kg is suspended form a spring with a shiftness constant of 24N/m. If the undamped frequency is 1.156 times the damped frequency. Calculate the damping factor?

Solution

$\omega_{\mathrm{d}} = \omega_0\sqrt{1-\zeta^2}$

damping ratio $\zeta = \sqrt{1-\left(\frac{\omega_d}{\omega_0}\right)^2} = 0.5$

$\zeta = \frac{c}{2\sqrt{mk}}.$

the viscous damping coefficient $c = 2\zeta\sqrt{mk} = 2 * 0.5\sqrt{1 \times 24} = 4.9$ N s/m