A helicopter has the following parameters. (4 blades)

\[ \omega_2 = 0.3 \]
\[ \omega_N = 0.7 \]

\[ \Phi = \frac{M_b}{n + 4 M_b} = 0.05 \]

\[ \Gamma = \frac{M_b x_2}{I_3} = \frac{3}{2} \]

If the blade damping is \( \delta = 0.10 \), what must the landing-gear damping \( \delta_N \) be in order to prevent ground resonance?

From page 168, for stability:

\[ \delta_N > \frac{Q \Phi \omega_2^2}{8 \omega_N (1 - \omega_N)} \]

\[ \delta_N > \frac{Q \Phi \omega_2^2}{8 \omega_N^2 (1 - \omega_N)} \]

\[ \delta_N > \frac{(0.05)(\frac{3}{2})(0.7)^2}{8 (0.3)(0.1)(1-0.7)} \]

\[ \delta_N > 0.51042 \]