stability: need $s^3 + 3s^2 + 2s + 10k$ to have roots with negative real part.

R-H array:

s^3	1	2
s^2	3	$10k$
s	$-\frac{1}{3}\begin{vmatrix} 1 & 2 \\ 3 & 10k \end{vmatrix} = 2 - \frac{10k}{3}$	$\Rightarrow \quad 2 - \frac{10k}{3} > 0 \quad \Rightarrow \quad k < \frac{6}{10} = \frac{3}{5}$
s^0	$10k$	

pick k as close to (but less than) $\frac{3}{5}$ as possible