62. (a) From Hooke's law, we have

$$k = \frac{(500\,\text{kg})\left(9.8\,\text{m/s}^2\right)}{10\,\text{cm}} = 490 \text{ N/cm} \ .$$

(b) The amplitude decreasing by 50% during one period of the motion implies

$$e^{-bT/2m} = \frac{1}{2} \quad \text{where} \quad T = \frac{2\pi}{\omega'} \ .$$

Since the problem asks us to estimate, we let $\omega' \approx \omega = \sqrt{k/m}$. That is, we let

$$\omega' \approx \sqrt{\frac{49000\,\text{N/m}}{500\,\text{kg}}} \approx 9.9 \text{ rad/s} \ ,$$

so that $T \approx 0.63$ s. Taking the (natural) log of both sides of the above equation, and rearranging, we find

$$b = \frac{2m}{T} \ln 2 \approx \frac{2(500)}{0.63}(0.69) = 1.1 \times 10^3 \text{ kg/s} \ .$$

Note: if one worries about the $\omega' \approx \omega$ approximation, it is quite possible (though messy) to use Eq. 16-41 in its full form and solve for b. The result would be (quoting more figures than are significant)

$$b = \frac{2 \ln 2 \sqrt{mk}}{\sqrt{(\ln 2)^2 + 4\pi^2}} = 1086 \text{ kg/s}$$

which is in good agreement with the value gotten "the easy way" above.