Problem 8/66, p. 622, in J. L. Meriam and L. G. Kraige, *Engineering Mechanics, Dynamics*, 5th Edition, Wiley, 2002

The seismic instrument shown is attached to a structure which has a horizontal harmonic vibration at 3 Hz. The instrument has a mass m_s = 0.5 kg, a spring stiffness k = 20 N/m, and a viscous damping coefficient c = 3 N·s/m. If the maximum recorded value of x in its steady-state motion is X_0 = 2 mm, determine the amplitude X_b of the horizontal movement x_b of the structure.