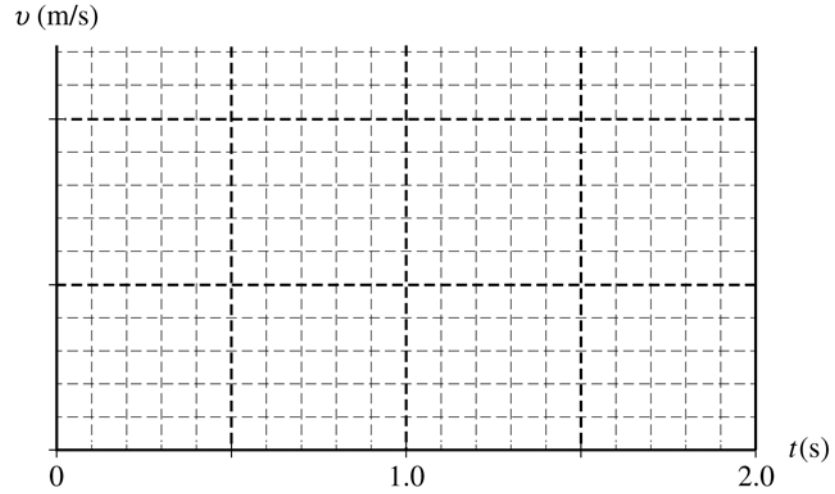
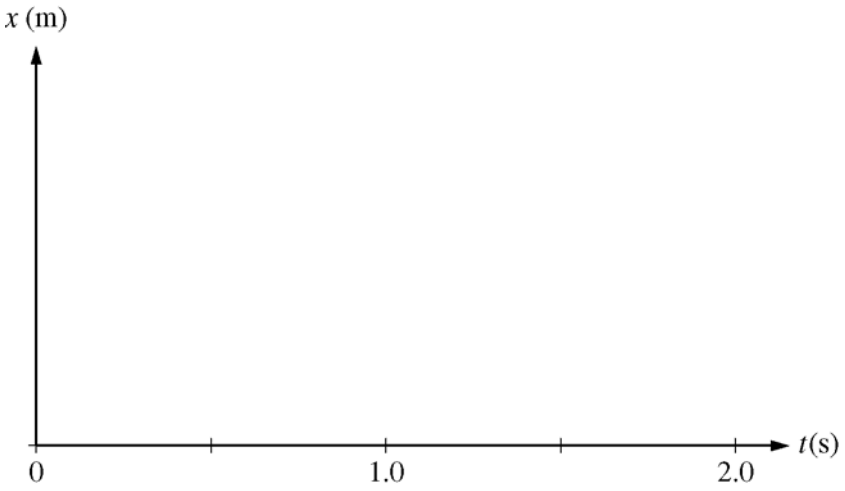
(a) On the axes below, plot the data points for velocity v as a function of time t for the glider, and draw a smooth curve that best fits the data. Be sure to label an appropriate scale on the vertical axis.



(b) The student wishes to use the data to plot position x as a function of time t for the glider.

i. Describe a method the student could use to do this.

ii. On the axes below, sketch the position x as a function of time t for the glider. Explicitly label any intercepts, asymptotes, maxima, or minima with numerical values or algebraic expressions, as appropriate.



(c) Calculate the time at which the glider makes contact with the bumper at the far right.

(d) Calculate the force constant of the spring.

(e) The experiment is run again, but this time the glider is attached to the spring rather than simply being pushed against it.

i. Determine the amplitude of the resulting periodic motion.

ii. Calculate the period of oscillation of the resulting periodic motion.