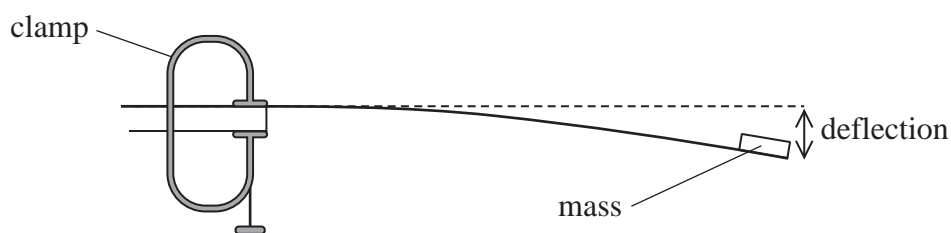
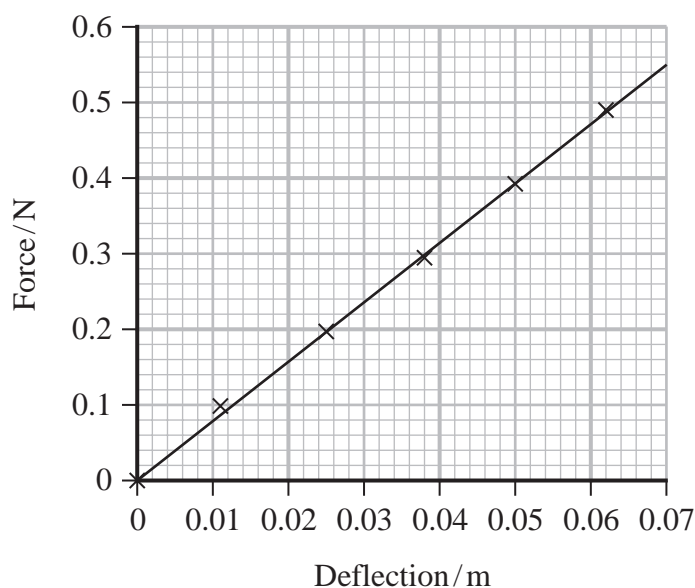


- 13** A student measured the deflection of a mass attached to the end of a thin strip of metal. The strip was clamped to a bench at one end as shown.



The student varied the force on the end of the strip by changing the mass attached. The deflection was measured each time when the mass was in its equilibrium position. The student obtained the following graph of deflection against force.



- (a) State why the mass will oscillate with simple harmonic motion when it is displaced slightly from its equilibrium position and released.

(2)

- (b) The student then investigated the oscillations of the mass on the metal strip. The student fixed different numbers of 10 g masses to the end of the metal strip.

The student noticed that the smaller the mass the higher the frequency of the oscillations. He estimated that the maximum number of oscillations he could count was two per second. He decided that the smallest mass he should use was 50 g.

Determine whether 50 g is the smallest mass he should use.

You may assume that the system acts in the same way as a mass on a spring.

(5)