4 A spring is suspended from a fixed point at one end. The spring is extended by a vertical force applied to the other end. The variation of the applied force F with the length L of the spring is shown in Fig. 4.1.

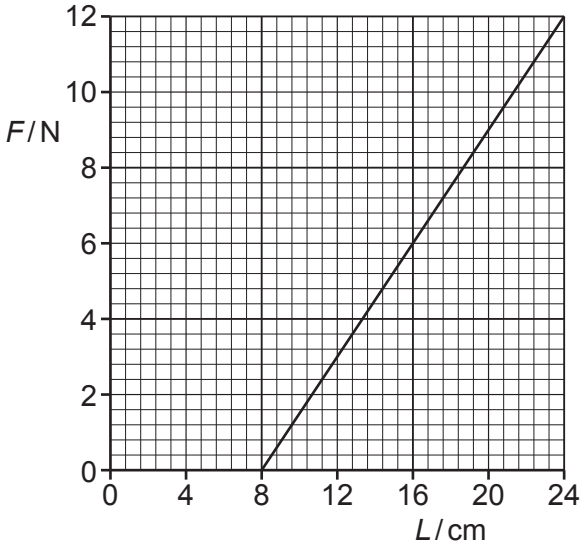

Fig. 4.1

For the spring:

(a) state the name of the law that gives the relationship between the force and the extension

..... [1]

(b) determine the spring constant, in $N\,m^{-1}$

spring constant = ... $N\,m^{-1}$ [2]

(c) determine the elastic potential energy when $F = 6.0\,\text{N}$.

elastic potential energy = ... J [2]

[Total: 5]