Coordinate Geometry: The Line

chapter 1

Section 1.8 Using linear relationships to solve problems

PROJECT MATHS – STRAND 2
Text & Tests 4
LEAVING CERTIFICATE HIGHER LEVEL

Example 1

A spring has an unstretched length of 10 cm. When it is hung with a load of 80 g attached, the stretch length is 28 cm. Assuming that the extension of the spring is proportional to the load,

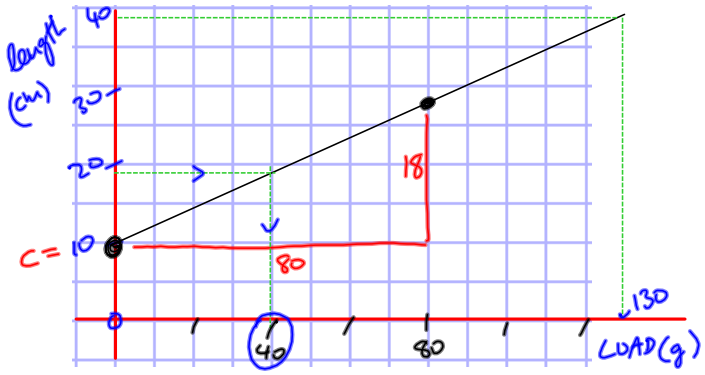
(i) draw a graph of extension E against load L.
(Put load L on the horizontal axis.)

(ii) find the equation of the line you have drawn in terms of L and E.

(iii) use your graph to find the load required to extend the spring to a length of 20 cm.

This particular spring passes its elastic limit when it is stretched to four times its original length. (This means that if it is stretched more than that it will not return to its original length.)

(iv) Find the load which would cause this to happen.



(ii) $m = \frac{18}{80} = \frac{9}{40}$

$y = \frac{9}{40}x + 10$

(iii) 40g

(iv) 130g