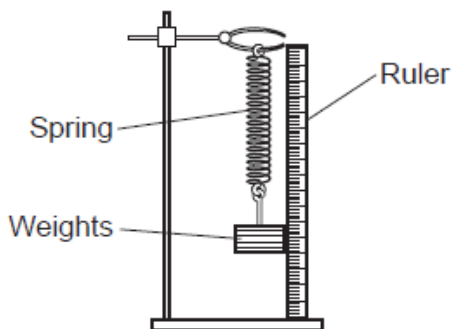


**GCSE Physics B (Twenty First Century Science)**  
**J259/02** Depth in physics (Foundation Tier)

**Question Set 23**

1

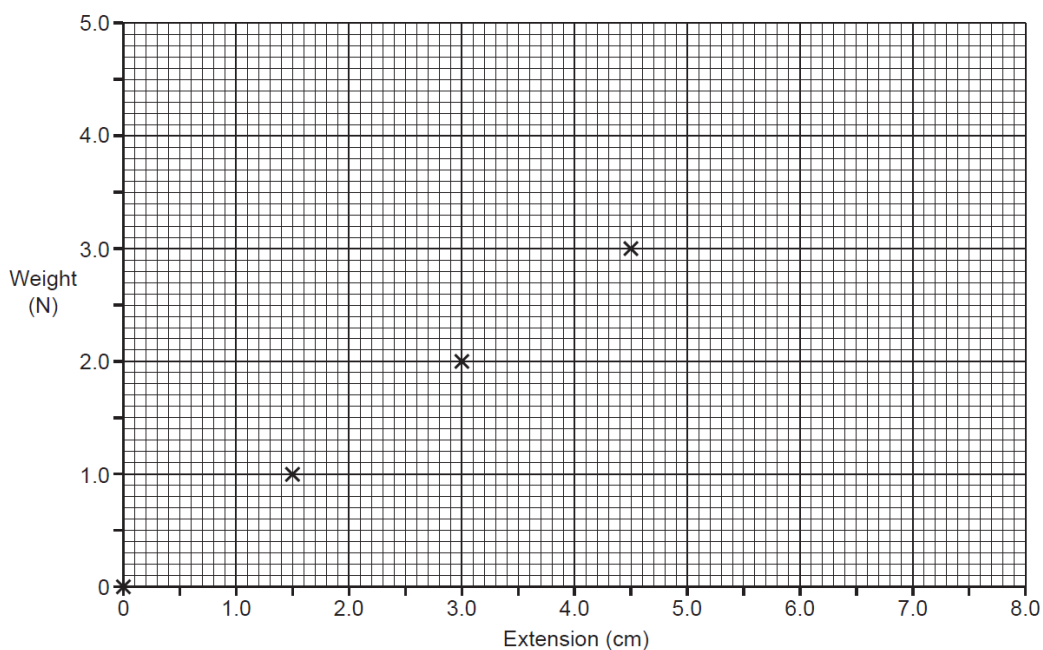
Li does an experiment to find the spring constant of a spring.



Li measures the extension of the spring when different weights are added, and records the results in the table.

Weight (N)	Extension (cm)
0	0
1.0	1.5
2.0	3.0
3.0	4.5
4.0	6.0
5.0	7.5

(a) (i) Plot the remaining **two** points on **Fig. 1.1** and draw a line of best fit.



**Fig. 1.1**

[2]

(ii) Describe the relationship between weight and the extension of the spring. [1]

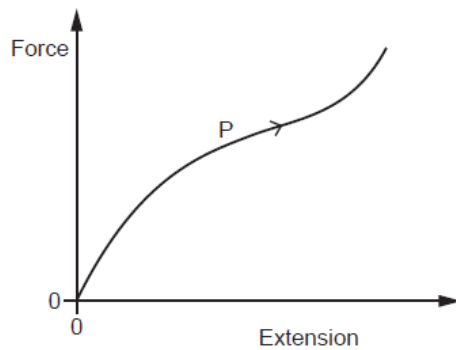
(iii) Calculate the spring constant of the spring.  
Show your working on **Fig. 1.1**.

Use the equation: spring constant = force ÷ extension

Give your answer to **2** significant figures.

Spring constant = ..... N/cm [3]

(b) **Fig. 1.2** shows Li's results for another elastic material.



**Fig. 1.2**

Complete the following statements about **Fig. 1.2**.

Put a **ring** around the correct choices.

The relationship for the elastic material is **linear** / **non-linear**.

The elastic material could be a **rubber band** / **metal wire**.

[2]

**Total Marks for Question Set 23: 8**

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