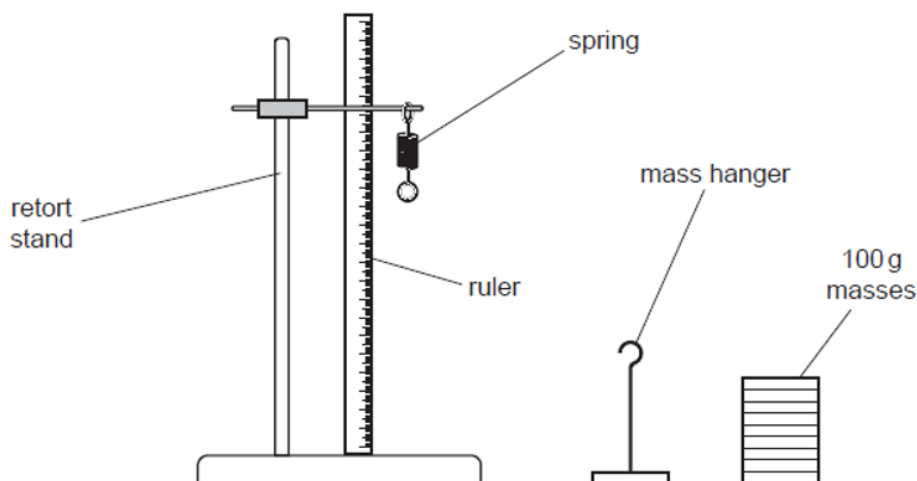


**GCSE Physics B (Twenty First Century Science)**  
**J259/01** Breadth in Physics (Foundation Tier)

**Question Set 37**

1

Mia investigates Hooke's law using the equipment shown in **Fig. 1.1**.



**Fig. 1.1**

- (a) Describe how to use the equipment in **Fig. 1.1** to investigate how the **extension** of the spring depends on the **force** applied to the spring.

[3]

Use ruler to measure extension. Add mass and measure new extension.

Use  $W=mg$  to work out weight

- (b) When Mia applies a force of 8.0 N, the spring has an extension of 0.20 m.

Calculate the spring constant of the spring.

$$F = ke \text{ so } k = F/e = 8/0.2 = 40\text{N/m}$$

Spring constant = .....<sup>40</sup> N/m

[3]

- (c) A group of students in Mia's class measures the spring constant of another spring.

**Table 1.1** shows each student's results.

Student	Spring constant (N/m)
Alex	28
James	24
Layla	30
Mia	29
<u>Sundip</u>	25

**Table 1.1**

(i) Using **Table 1.1**, find the median value of the spring constant.

Median = ..... **28** ..... N/m [1]

(ii) Using **Table 1.1**, calculate the mean value of the spring constant.

Mean = ..... **27.2** ..... N/m [1]

**Total Marks for Question Set 37: 8**

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