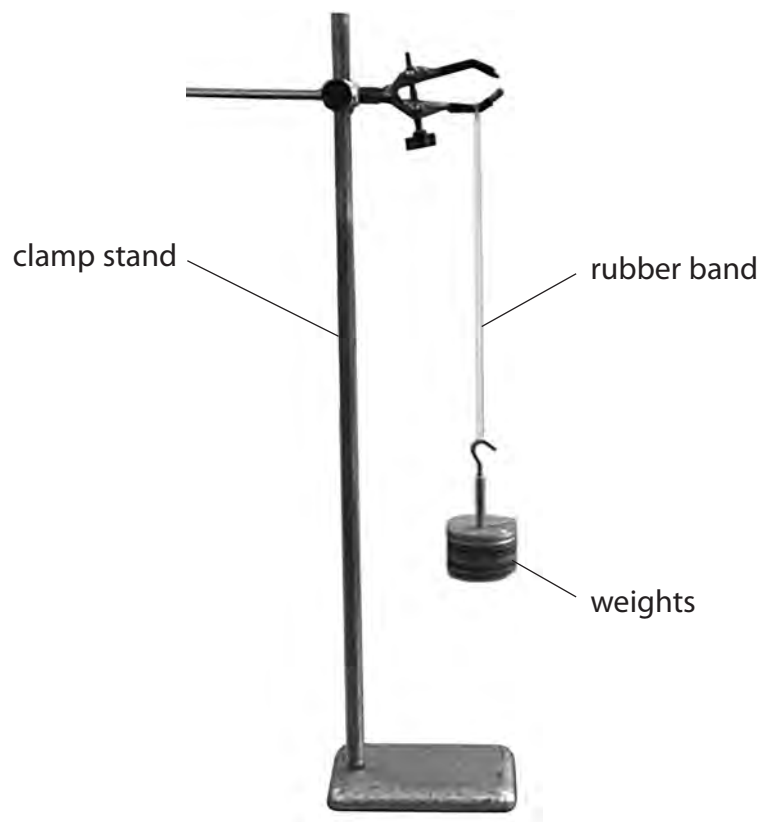


10 A student uses this apparatus to investigate the stretching of a rubber band.



This is the student's method.

- attach the 12 cm long rubber band to a clamp stand
- hang a 1 N weight from the other end of the rubber band
- determine the extension of the rubber band

The student repeats this method, increasing the weight by 1 N each time until the weight is 10 N.

(a) Describe how the student could determine the extension of the rubber band.

(3)

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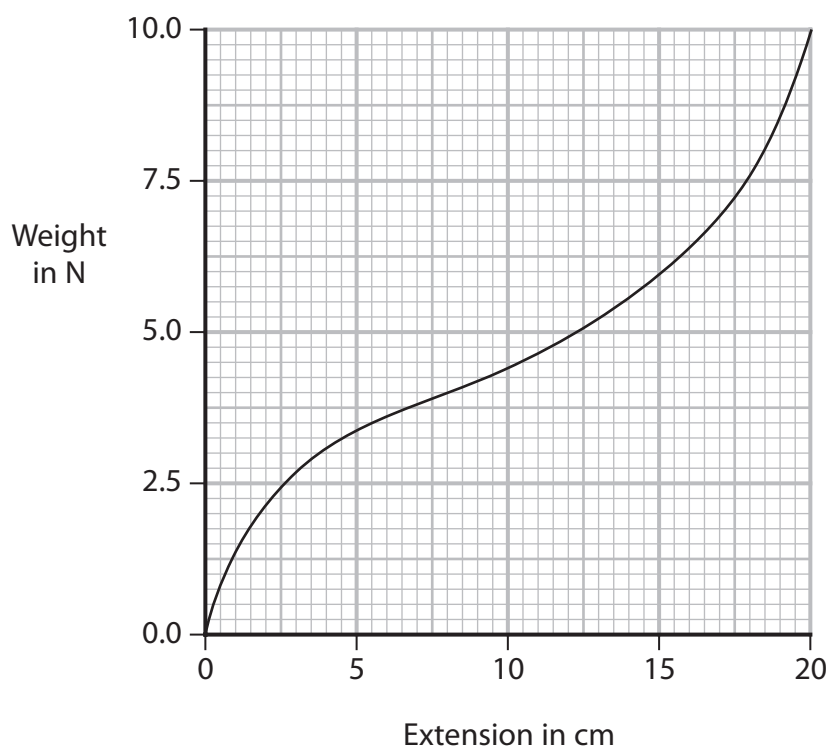
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(b) The graph shows the student's results.



(i) Explain how the graph shows that the rubber band does not obey Hooke's Law.

(2)

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- (ii) The area under the curve on the graph is equal to the increase in the rubber band's elastic energy store.

Estimate the increase in the rubber band's elastic energy store when the rubber band has been extended by 20 cm.

(4)

increase = J

(Total for Question 10 = 9 marks)

