

GCSE Physics

18th Jan 2021 – Measurements Practical

Suitable for ALL exam boards



This session looks at a practical that is all about taking measurements and calculating averages – such important skills to get right.

Don't forget to **subscribe** on **YouTube** and turn on **notification** to be reminded about the **weekly livestreams** to support you as you prepare for any exams.

Question taken from:

Edexcel IGCSE Physics – January 2015 - Paper 1P (4PH0/4SC0) – Question 6



6 A student uses a digital calliper to measure the diameter of a knitting needle.



The digital calliper gives readings to the nearest 0.01 mm.

(a) The student measures the diameter of the knitting needle eight times.

These are her readings.

mm 3.60	mm 3.62
mm 3.63	mm 3.61
mm 2.65	mm 3.62
mm 3.60	mm 3.61

(i) Circle the anomalous reading.

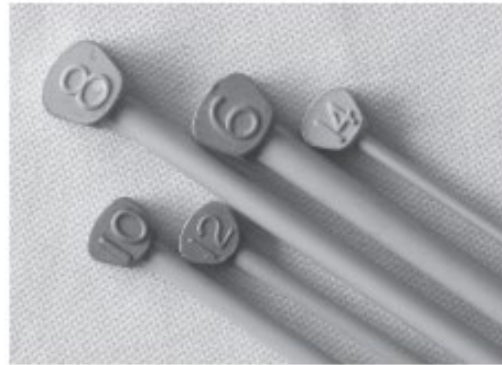
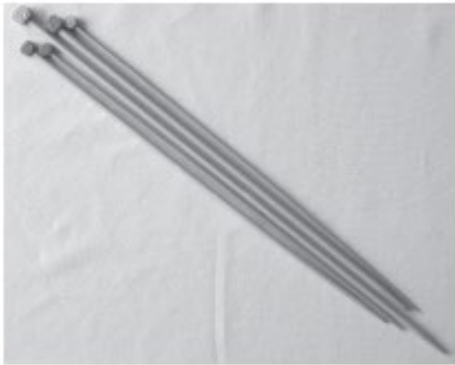
(1)

(ii) Calculate the average value for the diameter of the knitting needle.

(3)

average diameter = mm

(b) The student finds more knitting needles, some of which are shown in the photographs.

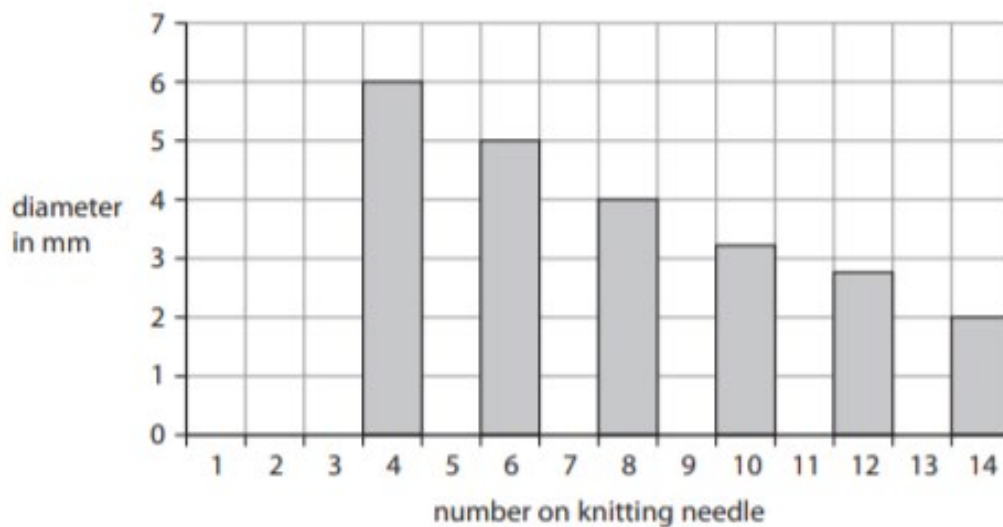


Each knitting needle is marked with a number that indicates its size.

Each number corresponds to a set diameter, as shown in the table.

Number on knitting needle	Diameter in mm
14	2.00
12	2.75
10	3.25
8	4.00
6	5.00
4	6.00

The student displays this data as a chart.



(i) Name the type of chart used by the student.

(1)

(ii) Explain why the data is best displayed using this chart rather than another type of graph.

(2)

(iii) Describe the relationship between the number on a knitting needle and its diameter.

(2)

(c) The knitting needles are not uniform in shape.

Describe how the student could measure the volume of a non-uniform shape.

(4)

(Total for Question 6 = 13 marks)

