

14 Unit test

- 1 a Cheaper [1], less time-consuming [1] b No – not representative [1]

- 2 a Cumulative frequency correctly calculated [1]
Points correctly plotted (4, 4), (5, 15), (6, 30), (7, 48), (8, 71), (9, 88), (10, 100) [1]
Smooth curve drawn [1]

b ≈ 7.1 [1]

c Upper quartile – lower quartile [1] = $2.6 - 2.7$ [1]

d $100 - 38$ [1] = 62 [1]

- 3 Men take longer on average (median for men = 24, median for women = 22.5); men and women have the same range (20) [3] [Award 1 mark for each of two valid comparisons, 1 for using values]

- 4 a Different numbers of people in each group [1]

- b 4 [1] c 6 [1] d 04, 25, 11, 16, 23, 21 [2] [1 for one error]

- 5 a Box plot drawn with median 18 [1], lower quartile 14 and upper quartile 26 [1], minimum 6 and maximum 45 [1]

- b Yes, 45 [1] c No – likely to be correct [1]

- 6 a Frequency densities correctly calculated

Length, l (m)	Frequency density
$1.5 \leq l < 2.0$	14
$2.0 \leq l < 2.5$	38
$2.5 \leq l < 2.8$	103
$2.8 \leq l < 3.0$	260
$3.0 \leq l < 3.5$	68
$3.5 \leq l < 5.0$	5

Axes/scales correctly labelled [1]

Bars correctly drawn [1]

- b Mid-interval values identified [1] and multiplied by frequencies [1], leading to $\frac{428.2}{150}$ [1] = 2.85 (2 d.p.) [1]

- c Median = 75th or 75.5th value [1]

Correct method [1] leading to median = 2.87 (2 d.p.) [1]

d 17 [1] + 7 [1] = 24 [1]

- e Lines drawn on histogram [1], accurately [1]

Mode = $2.88 - 2.9$ [1]

Sample student answer

- a A ruler has been used making it neater and more accurate to read off the values. The group B lines have been drawn differently to group A to distinguish them on the graph and make it less likely to read off the wrong values.

- b The lower quartile value is wrong because the scale has been read incorrectly. The student has tried to read '25' but has just counted up 5 squares, which really is 30.