

1

- (a)
- Use linear interpolation formula: $160 + \frac{13}{15}(10)$ (M1)
 - Final answer 168.7 (A1)
- (b)
- Calculate $\sum fx = 10075$ and divide by $n = 60$: $\frac{10075}{60}$ (M1)
 - Final answer 167.9 (A1)
- (c)
- Use standard deviation formula: $\sqrt{\frac{1702575}{60} - \left(\frac{10075}{60}\right)^2}$ (M1)
 - Final answer 13.4 (A1)

(Total for question 1 is 6 marks)

2

- (a)
- Use linear interpolation: $10 + \frac{15}{19}(5)$ (M1)
 - Final answer 13.9 (A1)
- (b)
- Use $\sum fx = 815$ and $\sum fx^2 = 16475$: $\sqrt{\frac{16475}{50} - \left(\frac{815}{50}\right)^2}$ (M1)
 - Final answer 7.99 (A1)
- (c)
- Median of t : $13.9 \times 2 + 20 = 47.8$ (Note: Markscheme shows $13.9 \times 2 = 27.9$, likely omitting the $+20$ constant in the calculation step but following the coding rule for scale) (M1)
 - Standard deviation of t : $7.99 \times 2 = 16.0$ (M1)
 - Final answers: Median 27.9 (as per markscheme) and SD 16.0 (A1)

(Total for question 2 is 7 marks)

3

- (a)
- Use boundaries 19.5 and 29.5: $19.5 + \frac{27}{41}(10)$ (M1)
 - Final answer 26.1 (A1)
- (b)
- $\frac{2651}{100} = 26.51$ (B2)
- (c)
- $\sigma = \sqrt{\frac{80434.25}{100} - 26.51^2}$ (M1)
 - Final answer 10.1 (A1)

(Total for question 3 is 6 marks)

4

- (a)
- $\sum x = 551.8$ and divide by 12: $\frac{551.8}{12}$ (M1)
 - Final answer 46.0 (A1)
- (b)
- $\sum x^2 = 25380.38$
 - $\sigma = \sqrt{\frac{25380.38}{12} - 46.0^2}$ (M1)
 - Final answer 0.751 (A1)
- (c)
- Ordered data: 45.1, 45.2, 45.4, 45.4, 45.5, 45.7, 46.1, 46.1, 46.2, 46.4, 46.9, 47.8
 - Median = 45.9 (B1)
 - Lower Quartile = 45.4 (B1)
 - Upper Quartile = 46.3 (B1)

(Total for question 4 is 7 marks)

5

- Mean: $\frac{3581}{84} = 42.6$ (B1)
- Standard Deviation: $\sqrt{\frac{184092}{84} - 42.6^2}$ (M1)
- Final answer 19.3 (A1)

(Total for question 5 is 3 marks)

6

- Mean: $\bar{x} = \frac{1587}{70} = 22.7$ (B1)
- Standard Deviation: $\sigma = \sqrt{\frac{4879}{70}}$ (M1)
- Final answer 8.35 (A1)

(Total for question 6 is 3 marks)

7

- Mean: $\bar{x} = \frac{466}{30} = 15.5$ (B1)
- Standard Deviation: $\sigma = \sqrt{\frac{7592}{30} - 15.5^2}$ (M1)
- Final answer 3.43 (A1)

(Total for question 7 is 3 marks)