1a) $160 + \left(\frac{13}{15} \times 10\right) = 168.\dot{6}$

$= \underline{169}$ (3sf)

b) $145 \times 7 + 155 \times 10 + 165 \times 15 + 175 \times 19 + 185 \times 9$

$= 10030$

$\frac{10030}{60} = 167.1\dot{6}$

$= \underline{167}$ (3sf)

c) $\Sigma fx^2 = 7 \times 145^2 + 10 \times 155^2 + 15 \times 165^2 + 19 \times 175^2 + 9 \times 185^2$

$= 1685700$

$\sigma = \sqrt{\frac{\Sigma fx^2}{n} - \left(\frac{\Sigma fx}{n}\right)^2}$

$= \sqrt{\frac{1685700}{60} - (167.1\dot{6})^2}$

$= \underline{12.3}$ (3sf)

2a) $10 + \frac{15}{19} \times 5 = \underline{13.9}$ (3sf)

b) $\Sigma fx = 1 \times 2.5 + 9 \times 7.5 + 19 \times 12.5 + 14 \times 20 + 7 \times 32.5$

$= 815$

$\Sigma fx^2 = 1 \times 2.5^2 + 9 \times 7.5^2 + 19 \times 12.5^2 + 14 \times 20^2 + 7 \times 32.5^2$

$= 16475$

$$\sigma = \sqrt{\frac{16475}{50} - \left(\frac{815}{50}\right)^2}$$

$= \underline{7.99}$ (3sf)

c) Median: "13.9" $\times 2 + 20$

$= 47.9$ (3sf)

St. Dev: "7.99" $\times 2$

$= \underline{16.0}$ 3sf

3a) $19.5 + \frac{27}{41} \times 10$

$= 26.1$ (3sf)

b) $\frac{2651}{100} = \underline{\underline{26.51}}$

c) $\sigma = \sqrt{\frac{80434.25}{100} - \left(\frac{2651}{100}\right)^2}$

$= \underline{\underline{10.1}}$ (3sf)

4a) $\Sigma x = 551.8$

$\Sigma x^2 = \cancel{23364.38}$

25380.38

a) mean $= \frac{551.8}{12} = \underline{\underline{46.0}}$ (3sf)

b) $\sigma = \sqrt{\frac{25380.38}{12} - \left(\frac{551.8}{12}\right)^2}$

$= \underline{\underline{0.751}}$ (3sf)

c)

median	45.9
l.q.	45.4
u.q.	46.3