National 5 Mathematics

Quartiles - Solutions

Marks are indicated in brackets after each question number

2015 Paper 1 Question 10, (3) (2)

a) {12 16 17 18 18 21 22 26 27 27}

Median $= Q_2 = \frac{18+21}{2} = 19.5$

$Q_1 = 17, Q_3 = 26$

Semi-interquartile Range $= \frac{26-17}{2} = 4.5$.

b) The median has increased and the semi-interquartile range has decreased. This means that on average the couples have scored better in the second round but because the semi-interquartile range has decreased the scores are less consistent than they were in the first round.

2017 Paper 1 Question 2, (2)

Ordering the data gives

198 216 218 230 232 247 248 250 265 267

$Q_1 = 218, \ Q_3 = 250$

Semi-interquartile range $= \frac{Q_3 - Q_1}{2}$

$$= \frac{250 - 218}{2}$$

$$= 16$$

2019 Paper 1 Question 5, (3) (2)

a) Reordering gives

3 3 4 4 5 6 7 9 10

Median $= 5$

$Q_1 = 3.5, Q_3 = 8$

Semi-interquartile range $= \frac{8 - 3.5}{2} = \frac{4.5}{2} = 2.25$

b) The median temperature was higher in Endoch than Grantford meaning that on average Endoch had higher midday temperatures over the nine day period.

The semi-interquartile range was lower in Endoch than Grantford meaning that the temperatures recorded over the nine day period were more consistent there.

2023 Paper 1 Question 9, (3) (2)

a) Start by ordering the numbers to give

31   33   35   36   38   41   41   42   47   55

Median $= Q_2 = \frac{38 + 41}{2} = 39.5$

$Q_1 = 35, Q_3 = 42$

Interquartile Range $= Q_3 - Q_1 = 42 - 35 = 7$

b) On average the magazine readers are younger than the newspaper readers.
The ages of the magazine readers is more consistent than the newspaper readers since the interquartile range is lower for the magazine readers.

2024 Paper 1 Question 5, (3) (2)

a) Median $= Q_2 = \frac{190 + 210}{2} = £200$

IQR $= Q_3 - Q_1 = 230 - 160 = 70$

b) The average price of a camera on the website is lower than in the shop.

The price of cameras in a shop is more consistent than on a website.

2025 Paper 1 Question 3, (3)

$Q_1 = 13$ and $Q_3 = 18$

$Q_3 - Q_1 = 18 - 13 = 5$

The interquartile range is 5.