



F04-10min Skewness by Inspection: 10-minute Pack

EDEXCEL 1ST0 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Write down whether this statement is True or False.
In a symmetric distribution, the mean, median and mode are all equal.

(Total for Question 1 is 1 mark)

- 2** A class test out of 30 has a mean score of 19.5, a median score of 22, and a modal score of 24.
State whether the distribution of scores is positively skewed or negatively skewed, giving a reason.

(Total for Question 2 is 2 marks)

- 3** The times, in minutes, taken by 15 runners to complete a fun run gave a lower quartile of 28 minutes, a median of 33 minutes and an upper quartile of 45 minutes.

(a) Work out median - lower quartile. (1)

(b) Work out upper quartile - median. (1)

(c) Compare your answers to parts (a) and (b) and state, giving a reason, whether the distribution of times is symmetric, positively skewed or negatively skewed. (2)

(Total for Question 3 is 4 marks)

- 4** A different survey has a lower quartile of 5, a median of 9, and an upper quartile of 20. Compare $Q_3 - Q_2$ with $Q_2 - Q_1$ to determine whether this distribution is positively skewed or negatively skewed.

(Total for Question 4 is 2 marks)

- 5** A small business records the annual bonus, in pounds, paid to each of its 8 staff: 500, 520, 510, 505, 515, 495, 505, 3000. Work out the mean bonus, giving your answer to the nearest pound.

(Total for Question 5 is 2 marks)

Mark scheme · F04-10min Skewness by Inspection: 10-minute Pack

Question 1

- **B1** True cao
- **Answer: True**

Question 2

- **M1** compares the mean with the median or mode, e.g. recognises mean < median < mode oe
- **A1** negatively skewed cao
- **Answer: Negatively skewed, since the mean (19.5) is less than the median (22), which is less than the mode (24).**

Question 3

- (a) **B1** 5 cao
- (a) **Answer: 5**
- (b) **B1** 12 cao
- (b) **Answer: 12**
- (c) **M1** compares median - LQ (5) with UQ - median (12), oe
- (c) **A1** Positively skewed, since the upper quartile is further from the median than the lower quartile is (a larger gap on the high-value side / a tail towards the higher times) cao
- (c) **Answer: Positively skewed**

Question 4

- **M1** $Q3 - Q2 = 11$ and $Q2 - Q1 = 4$ oe
- **A1** positively skewed cao
- **Answer: Positively skewed, since $Q3 - Q2$ (11) is greater than $Q2 - Q1$ (4).**

Question 5

- **M1** $(500+520+510+505+515+495+505+3000) / 8$ oe
- **A1** 819 (awrt) cao
- **Answer: £819 (awrt)**