

Median and Quartiles

Find the median, lower quartile, upper quartile and interquartile range for each of these sets of data.

- (a) 5, 7, 7, 8, 10, 12, 13
 (b) 18, 14, 20, 13, 17, 16, 16
 (c) 7, 4, 6, 7, 9, 5, 4, 8, 3, 10, 5
 (d) 3.5, 7.1, 2.7, 6.3, 4.9, 7.0, 3.7
 (e) 4, 2, 2, 3, 1, 5, 4, 4, 3, 6, 3
 (f) 6, 9, -2, 0, -3, 1, 6, 4, -5, 8, 3

The number of goals scored in each of Bury United's last eleven matches is:

0, 2, 0, 1, 1, 4, 0, 2, 3, 1, 2

Find the median number of goals scored and the interquartile range.

Over Wigan United's last seven matches their median number of goals scored was 1 and their interquartile range of goals scored was 2. Make two comparisons between the two sets of data.

The English test results for 11 students in each of classes 8A and 8B are shown below.

8A	64	37	52	87	57
	61	89	49	68	55

8B	71	92	63	83	81
	62	55	48	84	90

- (a) By finding the median and interquartile range, compare the two sets of results.
 (b) The teacher of 8B has marked one question incorrectly, and all student marks in 8B go up by 1. How does this affect the median and interquartile range?

$$(a) \text{ Med} = 8 \quad \text{LQ} = 7 \quad \text{UQ} = 12 \\ \text{IQR} = 5$$

$$(b) 13 \ 14 \ 16 \ 16 \ 17 \ 18 \ 20 \\ \text{Med} = 16 \quad \text{LQ} = 14 \quad \text{UQ} = 18 \\ \text{IQR} = 4$$

$$(c) 3 \ 4 \ 4 \ 5 \ 5 \ 6 \ 7 \ 7 \ 8 \ 9 \ 10 \\ \text{Med} = 6 \quad \text{LQ} = 4 \quad \text{UQ} = 8 \\ \text{IQR} = 4$$

$$(d) 2.7 \ 3.5 \ 3.7 \ 4.9 \ 6.3 \ 7.0 \ 7.1 \\ \text{Med} = 4.9 \quad \text{LQ} = 3.5 \quad \text{UQ} = 7.0 \\ \text{IQR} = 3.5$$

$$(e) 1 \ 2 \ 2 \ 3 \ 3 \ 3 \ 4 \ 4 \ 4 \ 5 \ 6 \\ \text{Med} = 3 \quad \text{LQ} = 2 \quad \text{UQ} = 4 \\ \text{IQR} = 2$$

$$(f) -5 \ -3 \ -2 \ 0 \ 1 \ 3 \ 4 \ 6 \ 6 \ 8 \ 9 \\ \text{Med} = 3 \quad \text{LQ} = -2 \quad \text{UQ} = 6 \\ \text{IQR} = 8$$

$$0 \ 0 \ 0 \ 1 \ 1 \ 1 \ 2 \ 2 \ 2 \ 3 \ 4 \\ \text{Med} = 1 \quad \text{IQR} = 2$$

Both teams have the same median.

Wigan's IQR is higher than Bury's, meaning Wigan is less consistent.

$$8A \ 37 \ 39 \ 49 \ 52 \ 55 \ 57 \ 61 \ 64 \ 68 \\ 87 \ 89$$

$$\text{Med} = 57 \quad \text{IQR} = 68 - 49 = 19$$

$$8B \ 48 \ 55 \ 62 \ 63 \ 71 \ 73 \ 81 \ 83 \ 84 \ 90 \ 92$$

$$\text{Med} = 73 \quad \text{IQR} = 84 - 62 = 22$$

(a) 8B has a higher median IQRs are similar, 8B has a slightly larger IQR

(b) IQR stays the same Median goes up by 1