

Measures of Spread

Range & IQR

4/11

Range: difference between highest & lowest values

IQR: difference between the 1st quartile (lower 25%) & 3rd quartile (upper 25%; at 75% mark) in a Sorted List

Ex1 2, 3, 4, 4, 7, 9, 13 * put in order if needed

2 3 4 4 7 9 13
 ↓ ↓ ↓
 Q1 median Q3

range $13-2$
 ↓
 11

IQR: $Q_3 - Q_1 \rightarrow$
 $9 - 3 \rightarrow 6$

Ex2 11 13 14 15 16 17 18 18 19 25 29
 ↓ ↓ ↓
 Q1 median Q3

Range: $29-11 \rightarrow 18$

IQR: $Q_3 - Q_1 \rightarrow 19-14 \rightarrow 5$

Ex3: 21 23 25 25 26 27 28 32 35
 ↓ ↓ ↓
 Q1: $\frac{25+23}{2} \rightarrow 24$ median Q3: $\frac{32+28}{2} \rightarrow 30$

Range: $35-21 \rightarrow 14$

IQR: $30-24 \rightarrow 6$

Ex4: 40 41 42 43 44 45 45 48 50
 ↓ ↓ ↓
 Q1: $\frac{41+42}{2} \rightarrow 41.5$ median Q3: $\frac{45+48}{2} \rightarrow 46.5$

Range: $50-40 \rightarrow 10$

IQR: $46.5-41.5 \rightarrow 5$