3.1) Outliers

Worked example

The scores of 10 students are recorded:

$$1, 8, 10, 9, -7, 21, 11, 10, 35, 0.3$$

An outlier is an observation that falls either

1.5 ×interquartile range above the upper quartile

or

1.5 ×interquartile range below the lower quartile.

Find any outliers.

Your turn

The scores of 10 students are recorded:

$$5, 12, 14, 13, 8, 9, 51, -4, 59, 0.2$$

An outlier is an observation that falls either

1.5 ×interquartile range above the upper quartile

or

1.5 ×interquartile range below the lower quartile.

Find any outliers. $-4, 51, 59$

Worked example

The scores of 10 students are recorded:

$$1, 8, 10, 9, -7, 21, 11, 10, 35, 0.3$$

An outlier is an observation that falls outside ± 2 standard deviations from the mean.

Find any outliers.

Your turn

The scores of 10 students are recorded:

$$5, 12, 14, 13, 8, 9, 51, -4, 59, 0.2$$

An outlier is an observation that falls either

1.5 ×interquartile range above the upper quartile

or

1.5 ×interquartile range below the lower quartile.

Find any outliers. 59

Worked example

Clean this data on ages of people in a group:

$12, 13, 14, 12, 13, 156$

Your turn

Clean this data on ages of people in a group:

$5, 7, 6, 5, 5, 567, 7, 6$

$\bar{x} + 2\sigma = 447.164 \ldots$

$567 \gg 447.164$ and an age of 567 is impossible.

$\therefore$ The clear anomaly of 567 should be removed from the data.