Quartiles boxplots and distributions

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A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the explanation and worked example. Show your working; use a calculator only where asked.

What you will practise

• Compare numerical distributions using quartiles and boxplots.

• Explain a method and check the reasonableness of a result.

Useful starting skills: Use the prerequisite operations and representations shown in the worked example.

A five-number summary lists minimum, Q1, median, Q3, maximum. Here quartiles are medians of the lower and upper halves; omit the central median when the count is odd.

IQR=Q3-Q1 measures the middle 50% spread. Boxplots summarise distributions efficiently but hide individual values and detailed shape; use histograms or dot plots alongside them when needed.

Worked example

Find the five-number summary of 2,4,6,8,10,12,14,16.

Median=(8+10)/2=9.

Q1=(4+6)/2=5; Q3=(12+14)/2=13.

Answer: 2,5,9,13,16; IQR 8

Try it yourself

Name: _____ Date: _____

1. Find median of 3,5,7,9,11,13.

2. Find Q1, Q3 and IQR for 2,4,6,8,10,12,14,16.

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. 8

Average the two central values 7 and 9.

2. 5,13,8

Median of each half; subtract quartiles.

Curriculum reference: VC2M10ST01

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