STATISTICS: INTERQUARTILE RANGE & BOX PLOTS

Best Guess Mastery Worksheet (Target Grade 5/6)

I Do

Sarah recorded the number of emails she received each day for 11 days.
Here are the results in numerical order.

3 5 8 10 11 14 15 18 20 21 25

Find the interquartile range of the number of emails.

IQR = ...

We Do

A teacher recorded the scores of 15 students in a spelling test.
Here are the results in numerical order.

11 12 14 14 15 17 18 19 21 22 22 24 25
27 29

Find the interquartile range of the test scores.

IQR = ...

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You Do 1

The ages of 9 people in a waiting room are recorded.
Here are the results in numerical order.

2 4 7 9 12 15 16 19 22

Find the interquartile range of their ages.

IQR = ...

You Do 2

The weights, in kg, of 12 dogs are recorded.
Here are the **raw, unordered** results.

45 32 51 28 41 37 49 36 44 55 31 39

Find the interquartile range of the weights.

IQR = ...

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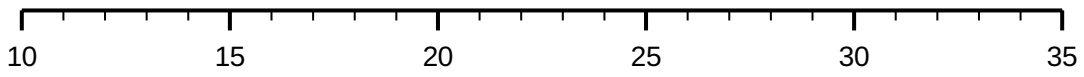
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Challenge 1

The times, in minutes, taken by 15 students to complete a puzzle are recorded below:

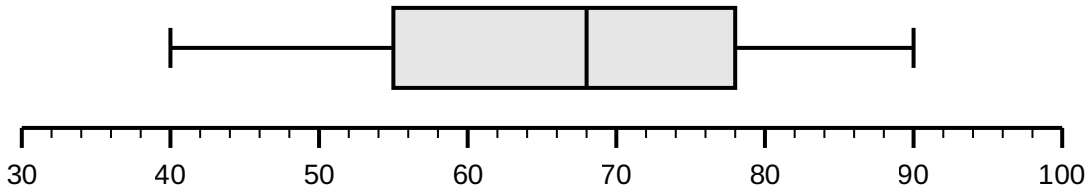
12 18 22 14 29 31 17 25 24 19 26 30 21
15 27

On the grid provided, draw a box plot for this data.



Challenge 2

The box plot shows the distribution of test scores for Class A.



The test scores for Class B have a median of 62 and an interquartile range of 28.
Compare the distributions of the test scores for Class A and Class B.

Answers & Worked Solutions

I Do:

1. There are 11 values ($n = 11$).
2. Median is the 6th value = 14.
3. Lower Quartile (LQ) is the median of the lower 5 values: 3rd value = 8.
4. Upper Quartile (UQ) is the median of the upper 5 values: 9th value = 20.
5. IQR = UQ − LQ = 20 − 8 = **12**.

We Do:

1. There are 15 values ($n = 15$).
2. Median is the 8th value = 19.
3. LQ is the 4th value = 14.
4. UQ is the 12th value = 24.
5. IQR = 24 − 14 = **10**.

You Do 1:

1. There are 9 values. Median is the 5th value = 12.
2. LQ is between the 2nd and 3rd values: (4 + 7) ÷ 2 = 5.5.
3. UQ is between the 7th and 8th values: (16 + 19) ÷ 2 = 17.5.
4. IQR = 17.5 − 5.5 = **12**.

You Do 2:

1. First, order the data: 28, 31, 32, 36, 37, 39, 41, 44, 45, 49, 51, 55.
2. Split the 12 values in half. Lower half: 28, 31, 32, 36, 37, 39. Upper half: 41, 44, 45, 49, 51, 55.
3. LQ is the median of the lower half: (32 + 36) ÷ 2 = 34.
4. UQ is the median of the upper half: (45 + 49) ÷ 2 = 47.
5. IQR = 47 − 34 = **13**.

Challenge 1:

1. Order the data: 12, 14, 15, 15, 17, 18, 19, 21, 22, 24, 25, 26, 27, 29, 31.
2. Identify the 5 key values:
   Minimum = **12**
   Lower Quartile (4th value) = **15**
   Median (8th value) = **21**
   Upper Quartile (12th value) = **26**
   Maximum = **31**
3. The box plot should be drawn accurately above the axis using these 5 values.

Challenge 2:

1. Read Class A data from the box plot: Median = 68. IQR = 78 − 55 = 23.
2. Compare medians: Class A has a higher median (68 > 62), which means on average, Class A scored higher than Class B.
3. Compare spread/IQR: Class A has a lower IQR (23 < 28), which means Class A's scores are more consistent (less spread out) than Class B's scores.
(Both an average comparison and a spread comparison are required for full marks).