

1. Solution

The sample size, n , is 18. We determine the indices and values of Q1, Q2, and Q3.

Quartile	Formula for i	i	x
Q1	$\lceil 0.25 \times 18 \rceil$	5	61.4
Q2	$\lceil 0.5 \times 18 \rceil$	9	61.54
Q3	$\lceil 0.75 \times 18 \rceil$	14	61.65

We determine the IQR.

$$\begin{aligned} \text{IQR} &= Q3 - Q1 \\ &= 61.65 - 61.4 \\ &= 0.25 \end{aligned}$$

We determine the outlier boundaries.

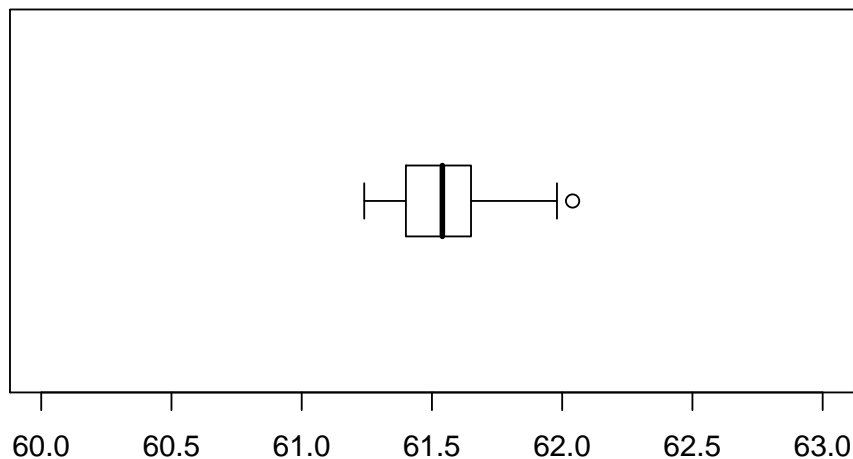
$$\begin{aligned} \text{lower boundary} &= Q1 - 1.5 \times \text{IQR} \\ &= 61.4 - 1.5 \times 0.25 \\ &= 61.025 \end{aligned}$$

$$\begin{aligned} \text{upper boundary} &= Q3 + 1.5 \times \text{IQR} \\ &= 61.65 + 1.5 \times 0.25 \\ &= 62.025 \end{aligned}$$

We determine the outliers.

$$\text{outliers} = \{62.04\}$$

We identify the ends of the whiskers: 61.24 and 61.98. We plot the boxplot.



2. Solution

The sample size, n , is 21. We determine the indices and values of Q1, Q2, and Q3.

Quartile	Formula for i	i	x
Q1	$\lceil 0.25 \times 21 \rceil$	6	54.65
Q2	$\lceil 0.5 \times 21 \rceil$	11	56.93
Q3	$\lceil 0.75 \times 21 \rceil$	16	58.48

We determine the IQR.

$$\begin{aligned}
 \text{IQR} &= Q3 - Q1 \\
 &= 58.48 - 54.65 \\
 &= 3.83
 \end{aligned}$$

We determine the outlier boundaries.

$$\begin{aligned}
 \text{lower boundary} &= Q1 - 1.5 \times \text{IQR} \\
 &= 54.65 - 1.5 \times 3.83 \\
 &= 48.905
 \end{aligned}$$

$$\begin{aligned}
 \text{upper boundary} &= Q3 + 1.5 \times \text{IQR} \\
 &= 58.48 + 1.5 \times 3.83 \\
 &= 64.225
 \end{aligned}$$

We determine the outliers.

$$\text{outliers} = \{47.51, 47.59, 48.22\}$$

We identify the ends of the whiskers: 49.77 and 59.47. We plot the boxplot.

