

1. 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	63.55
Q2	$\lceil 0.5 \times 21 \rceil$	11	64.03
Q3	$\lceil 0.75 \times 21 \rceil$	16	64.33

We determine the IQR.

$$\begin{aligned} \text{IQR} &= Q3 - Q1 \\ &= 64.33 - 63.55 \\ &= 0.78 \end{aligned}$$

We determine the outlier boundaries.

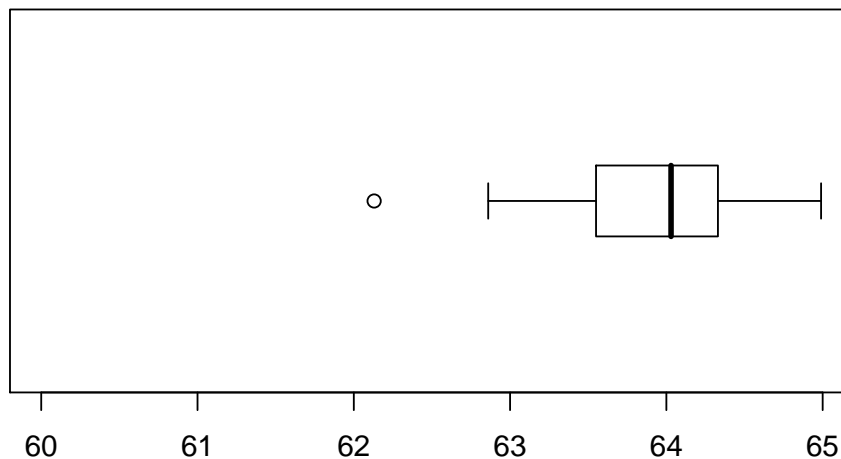
$$\begin{aligned} \text{lower boundary} &= Q1 - 1.5 \times \text{IQR} \\ &= 63.55 - 1.5 \times 0.78 \\ &= 62.38 \end{aligned}$$

$$\begin{aligned} \text{upper boundary} &= Q3 + 1.5 \times \text{IQR} \\ &= 64.33 + 1.5 \times 0.78 \\ &= 65.5 \end{aligned}$$

We determine the outliers.

$$\text{outliers} = \{62.13\}$$

We identify the ends of the whiskers: 62.86 and 64.99. We plot the boxplot.



2. Solution

The sample size, n , is 36. We determine the indices and values of Q1, Q2, and Q3.

Quartile	Formula for i	i	x
Q1	$\lceil 0.25 \times 36 \rceil$	9	54.65
Q2	$\lceil 0.5 \times 36 \rceil$	18	55.17
Q3	$\lceil 0.75 \times 36 \rceil$	27	55.73

We determine the IQR.

$$\begin{aligned} \text{IQR} &= Q3 - Q1 \\ &= 55.73 - 54.65 \\ &= 1.08 \end{aligned}$$

We determine the outlier boundaries.

$$\begin{aligned} \text{lower boundary} &= Q1 - 1.5 \times \text{IQR} \\ &= 54.65 - 1.5 \times 1.08 \\ &= 53.03 \end{aligned}$$

$$\begin{aligned} \text{upper boundary} &= Q3 + 1.5 \times \text{IQR} \\ &= 55.73 + 1.5 \times 1.08 \\ &= 57.35 \end{aligned}$$

We determine the outliers.

$$\text{outliers} = \{52.97, 57.7\}$$

We identify the ends of the whiskers: 53.32 and 56.73. We plot the boxplot.

