

1. Solution

The sample size, n , is 32. We determine the indices and values of Q1, Q2, and Q3.

Quartile	Formula for i	i	x
Q1	$\lceil 0.25 \times 32 \rceil$	8	52.31
Q2	$\lceil 0.5 \times 32 \rceil$	16	52.46
Q3	$\lceil 0.75 \times 32 \rceil$	24	52.67

We determine the IQR.

$$\begin{aligned} \text{IQR} &= Q3 - Q1 \\ &= 52.67 - 52.31 \\ &= 0.36 \end{aligned}$$

We determine the outlier boundaries.

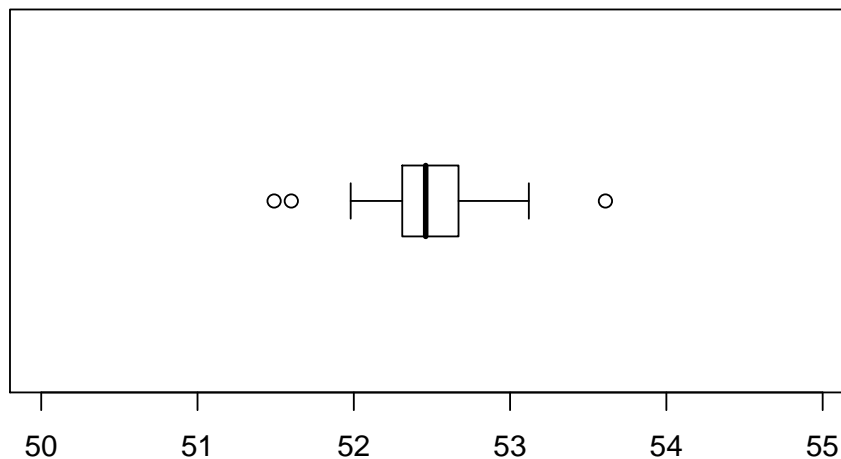
$$\begin{aligned} \text{lower boundary} &= Q1 - 1.5 \times \text{IQR} \\ &= 52.31 - 1.5 \times 0.36 \\ &= 51.77 \end{aligned}$$

$$\begin{aligned} \text{upper boundary} &= Q3 + 1.5 \times \text{IQR} \\ &= 52.67 + 1.5 \times 0.36 \\ &= 53.21 \end{aligned}$$

We determine the outliers.

$$\text{outliers} = \{51.49, 51.6, 53.61\}$$

We identify the ends of the whiskers: 51.98 and 53.12. We plot the boxplot.



2. Solution

The sample size, n , is 15. We determine the indices and values of Q1, Q2, and Q3.

Quartile	Formula for i	i	x
Q1	$\lceil 0.25 \times 15 \rceil$	4	49.19
Q2	$\lceil 0.5 \times 15 \rceil$	8	50.02
Q3	$\lceil 0.75 \times 15 \rceil$	12	53.06

We determine the IQR.

$$\begin{aligned}
 \text{IQR} &= Q3 - Q1 \\
 &= 53.06 - 49.19 \\
 &= 3.87
 \end{aligned}$$

We determine the outlier boundaries.

$$\begin{aligned}
 \text{lower boundary} &= Q1 - 1.5 \times \text{IQR} \\
 &= 49.19 - 1.5 \times 3.87 \\
 &= 43.385
 \end{aligned}$$

$$\begin{aligned}
 \text{upper boundary} &= Q3 + 1.5 \times \text{IQR} \\
 &= 53.06 + 1.5 \times 3.87 \\
 &= 58.865
 \end{aligned}$$

We determine the outliers.

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

We identify the ends of the whiskers: 44.15 and 54.65. We plot the boxplot.

