

**1. Solution**

The sample size,  $n$ , is 24. We determine the indices and values of Q1, Q2, and Q3.

| Quartile | Formula for $i$                | $i$ | $x$   |
|----------|--------------------------------|-----|-------|
| Q1       | $\lceil 0.25 \times 24 \rceil$ | 6   | 38.83 |
| Q2       | $\lceil 0.5 \times 24 \rceil$  | 12  | 39.58 |
| Q3       | $\lceil 0.75 \times 24 \rceil$ | 18  | 40.87 |

We determine the IQR.

$$\begin{aligned} \text{IQR} &= Q3 - Q1 \\ &= 40.87 - 38.83 \\ &= 2.04 \end{aligned}$$

We determine the outlier boundaries.

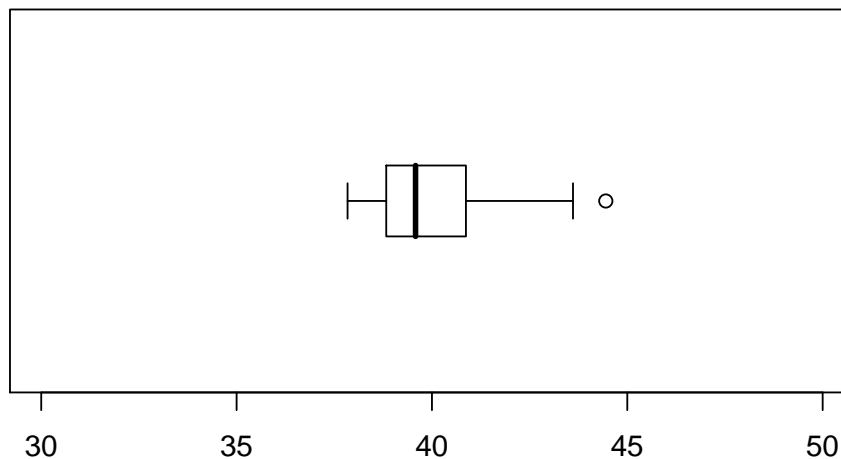
$$\begin{aligned} \text{lower boundary} &= Q1 - 1.5 \times \text{IQR} \\ &= 38.83 - 1.5 \times 2.04 \\ &= 35.77 \end{aligned}$$

$$\begin{aligned} \text{upper boundary} &= Q3 + 1.5 \times \text{IQR} \\ &= 40.87 + 1.5 \times 2.04 \\ &= 43.93 \end{aligned}$$

We determine the outliers.

$$\text{outliers} = \{44.45\}$$

We identify the ends of the whiskers: 37.84 and 43.61. We plot the boxplot.



**2. 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   | 116.73 |
| Q2       | $\lceil 0.5 \times 18 \rceil$  | 9   | 123.27 |
| Q3       | $\lceil 0.75 \times 18 \rceil$ | 14  | 126.1  |

We determine the IQR.

$$\begin{aligned}
 \text{IQR} &= Q3 - Q1 \\
 &= 126.1 - 116.73 \\
 &= 9.37
 \end{aligned}$$

We determine the outlier boundaries.

$$\begin{aligned}
 \text{lower boundary} &= Q1 - 1.5 \times \text{IQR} \\
 &= 116.73 - 1.5 \times 9.37 \\
 &= 102.675
 \end{aligned}$$

$$\begin{aligned}
 \text{upper boundary} &= Q3 + 1.5 \times \text{IQR} \\
 &= 126.1 + 1.5 \times 9.37 \\
 &= 140.155
 \end{aligned}$$

We determine the outliers.

$$\text{outliers} = \{140.66\}$$

We identify the ends of the whiskers: 107.83 and 132.64. We plot the boxplot.

