

**1. Solution**

The sample size,  $n$ , is 54. We determine the indices and values of Q1, Q2, and Q3.

Quartile	Formula for $i$	$i$	$x$
Q1	$\lceil 0.25 \times 54 \rceil$	14	62.41
Q2	$\lceil 0.5 \times 54 \rceil$	27	63.88
Q3	$\lceil 0.75 \times 54 \rceil$	41	66.98

We determine the IQR.

$$\begin{aligned} \text{IQR} &= Q3 - Q1 \\ &= 66.98 - 62.41 \\ &= 4.57 \end{aligned}$$

We determine the outlier boundaries.

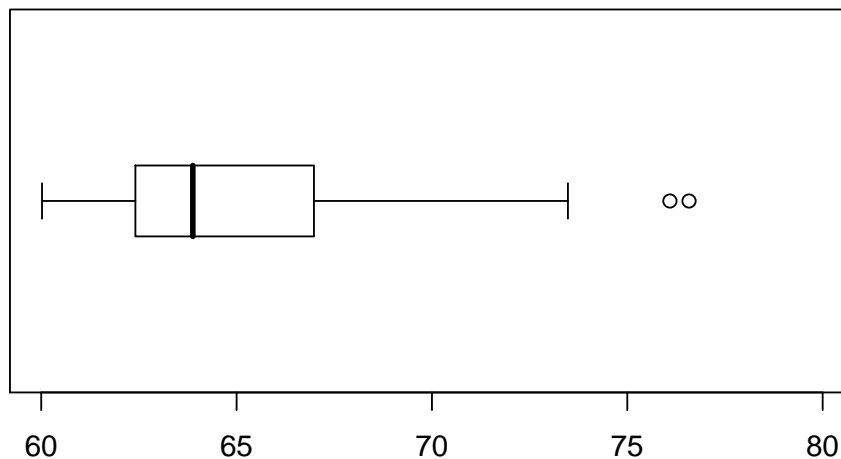
$$\begin{aligned} \text{lower boundary} &= Q1 - 1.5 \times \text{IQR} \\ &= 62.41 - 1.5 \times 4.57 \\ &= 55.555 \end{aligned}$$

$$\begin{aligned} \text{upper boundary} &= Q3 + 1.5 \times \text{IQR} \\ &= 66.98 + 1.5 \times 4.57 \\ &= 73.835 \end{aligned}$$

We determine the outliers.

$$\text{outliers} = \{76.09, 76.58\}$$

We identify the ends of the whiskers: 60.02 and 73.48. We plot the boxplot.



**2. Solution**

The sample size,  $n$ , is 48. We determine the indices and values of Q1, Q2, and Q3.

Quartile	Formula for $i$	$i$	$x$
Q1	$\lceil 0.25 \times 48 \rceil$	12	71.96
Q2	$\lceil 0.5 \times 48 \rceil$	24	90.31
Q3	$\lceil 0.75 \times 48 \rceil$	36	101.1

We determine the IQR.

$$\begin{aligned}
 \text{IQR} &= Q3 - Q1 \\
 &= 101.1 - 71.96 \\
 &= 29.14
 \end{aligned}$$

We determine the outlier boundaries.

$$\begin{aligned}
 \text{lower boundary} &= Q1 - 1.5 \times \text{IQR} \\
 &= 71.96 - 1.5 \times 29.14 \\
 &= 28.25
 \end{aligned}$$

$$\begin{aligned}
 \text{upper boundary} &= Q3 + 1.5 \times \text{IQR} \\
 &= 101.1 + 1.5 \times 29.14 \\
 &= 144.81
 \end{aligned}$$

We determine the outliers.

$$\text{outliers} = \{19.63\}$$

We identify the ends of the whiskers: 45.84 and 108.74. We plot the boxplot.

