Summary Measures Worksheet

**Exercise 6.1**

Results:

* Sample size: n = 50
* Sample mean: x̄ = 3.71
* Sample standard deviation: s = 2.77

Interpretation:

* The mean weight loss under Diet B is 3.71 kg, with a spread (standard deviation) of about 2.77 kg.

Comparing with Diet A (mean weight loss ≈ 5.34 kg, s ≈ 2.54):

* Diet A produced a higher average weight loss.
* The variability of results is similar between diets (slightly larger for Diet B).

Conclusion:

* Diet A appears more effective overall, since participants lost more weight on average compared with Diet B.

**Exercise 6.2**

Results (Area 1):

* Median: 3.75 kg
* 1st Quartile (Q1): 1.95 kg
* 3rd Quartile (Q3): 5.40 kg
* Interquartile Range (IQR): 3.45 kg

Interpretation:

* The median weight loss under Diet B is 3.75 kg, with half of the participants losing between 1.95 kg and 5.40 kg. The spread of results (IQR ≈ 3.45 kg) shows moderate variability.

Comparing with Diet A (median ≈ 5.64 kg, Q1 ≈ 3.81, Q3 ≈ 6.81, IQR ≈ 3.00):

* Diet A leads to a higher central tendency of weight loss (median).
* Diet B not only results in less average weight loss, but also shows a slightly wider spread of outcomes.

Conclusion:

* Diet A appears more effective overall for weight reduction compared to Diet B.

**Exercise 6.3**

Results (Area 2):

* Brand A: 19 (21.1%)
* Brand B: 30 (33.3%)
* Other brands: 41 (45.6%)

Interpretation:

* Area 2 respondents show the highest preference for Other brands, nearly half the group.
* Brand B ranks second (one-third), while Brand A is least preferred (one-fifth).
* Compared with Area 1 (from the example), Area 2 shows weaker brand loyalty and stronger diversification toward “Other” brands.

Conclusion:

* Brand preferences differ across demographic areas, Area 1 is more focused on established brands, while Area 2 consumers are more fragmented and open to alternatives.