

1. Standardized score.

(a) The median reaction time must be shorter than 521 milliseconds. If the distribution is positively skewed, the mean is larger than the median.

$$(b) z = \frac{x - \bar{x}}{s} = \frac{401 - 521}{87} = -1.379$$

2. Graphical summary of data.

(a)

Stem	Leaf
2	011
2	222233
2	44
2	
2	8

(b) The distribution of the data is positively skewed.

3. Numerical summary of data.

Note: $\sum x = 914$; $\sum x^2 = 168206$; $n = 5$

(a) $m = 186.000$

(b) $\bar{x} = \frac{\sum x}{n} = \frac{914}{5} = 182.800$

$$s^2 = \frac{\sum x^2 - (\sum x)^2/n}{n - 1} = \frac{168206 - (914)^2/5}{5 - 1} = 281.700$$

4. Experimental design.

(a) Non-response bias may be present.

(b) The results based on a sample of college students cannot be generalized to a larger population of adults.

5. Types of data.

(a) Continuous numerical

(b) Categorical

(c) Discrete numerical

(d) Discrete numerical

6. Variability of data.

(a) The two data sets have the same standard deviation.

(b) Any c between 10 and 30 (exclusive) will make the standard deviation of Z smaller than that of X or Y .