Problem of the Week
Problem A and Solution
Different Continents

Problem

Najeep surveyed some grade 3 and 4 students at school to see in which continents they were born. Her results are recorded in the chart below.

Where Students Were Born

North America	Europe	Africa	Asia	South America	Australia
13	12	8	17	9	4

A) Create a bar graph to display Najeep's data.

B) How many students completed Najeep's survey?

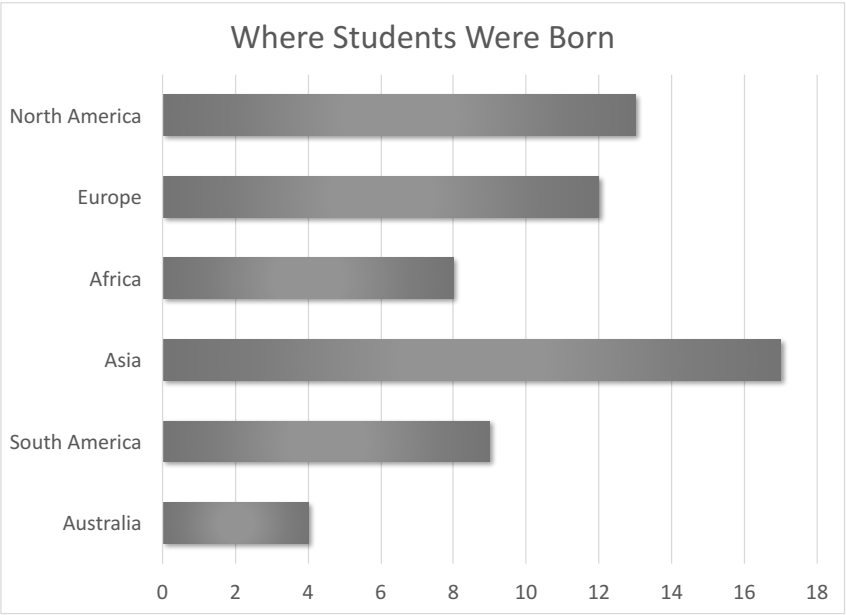
C) *Range* is the difference between the greatest and smallest values in a set of data. What is the range of the data that Najeep collected?

D) What conclusions can you draw from this data?

E) How does this data compare to the data from your own school?

Solution

A)



B) The total number of students who completed the survey was:

$$17 + 12 + 8 + 13 + 9 + 4 = 63$$

C) The smallest value is 4. The largest value is 17. The range is $17 - 4 = 13$.

D) There are many ways to interpret the data. Here are a few to consider. We can group the continents by geography and compare the total number of people from the northern and southern hemispheres or the eastern and western hemispheres. A bar chart easily distinguishes the largest and the smallest values. We could create a pie chart to see the percentages from each continent more easily.

E) This will depend on the data collected.

Teacher's Notes

In this problem, we are working with *discrete* data. In statistics, some problems involve discrete data and others involve *continuous* data.

Countable data, such as a number of people born on a particular continent, the number of coins saved in a piggy bank, or how many credits someone has earned at school, is discrete. We often represent this type of data in the form of a bar graph.

Values such as the time it takes someone to run a race, or the height of a person, or the weight of food that has been purchased, are all measured on a continuous scale. We are limited in how accurately we can measure these values by the tools at our disposal. For example, when people run the 100 m dash, their times are recorded to the nearest millisecond. However, this result is likely to have been rounded off. If we had more precise measuring tools, the time could be measured to the nearest microsecond. In fact, there are an infinite number of times between 9.58 seconds and 9.59 seconds; time intervals cannot be counted.

With continuous data we often use scatter plots to record the information. In some cases, we may take the resulting graph and find a *line of best fit*. This line can show trends that can be inferred by the specific data that has been gathered.