The heights (in centimetres) of members of several Cycle One students are listed in the chart below.

<table>
<thead>
<tr>
<th>155</th>
<th>150</th>
<th>160</th>
<th>163</th>
<th>152</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>157</td>
<td>152</td>
<td>147</td>
<td>165</td>
</tr>
<tr>
<td>155</td>
<td>157</td>
<td>173</td>
<td>168</td>
<td>157</td>
</tr>
<tr>
<td>165</td>
<td>160</td>
<td>168</td>
<td>160</td>
<td>163</td>
</tr>
</tbody>
</table>

How can Qi describe this data set using the maximum, minimum, and range?

A. Rewrite the data values in order from least to greatest.
B. Determine the minimum for this set of data.
C. Determine the maximum for this set of data.
D. Use the maximum and minimum to find the range for this set of data.
E. Describe this data set using the maximum, minimum, and range.

Reflecting

1. What is the maximum for a set of data?
2. What is the minimum for a set of data?
3. How do you calculate the range for a set of data?
   What are you finding when you calculate the range for a set of data?
Example 1: Determining the range of a data set

Find the maximum, minimum, and range for this data set, showing the number of players playing at one time on each type of sports team.

<table>
<thead>
<tr>
<th>Sports Team</th>
<th>Players</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseball</td>
<td>9</td>
</tr>
<tr>
<td>Basketball</td>
<td>5</td>
</tr>
<tr>
<td>Cricket</td>
<td>11</td>
</tr>
<tr>
<td>Hockey</td>
<td>6</td>
</tr>
<tr>
<td>Lacrosse, men’s</td>
<td>10</td>
</tr>
<tr>
<td>Lacrosse, women’s</td>
<td>12</td>
</tr>
<tr>
<td>Polo</td>
<td>4</td>
</tr>
<tr>
<td>Soccer</td>
<td>11</td>
</tr>
<tr>
<td>Volleyball</td>
<td>6</td>
</tr>
</tbody>
</table>

Chandra’s Solution

1. First, I rewrote the values in order from least to greatest.

2. Maximum = 12

3. Minimum = 4

4. Range = maximum − minimum
   Range = 12 − 4
   Range = 8

The maximum for this data set is 12, the minimum is 4, and the range is 8. This means that the sport with the least number of players playing at one time is polo (4 players), and the sport with the greatest number of players playing at one time is women’s lacrosse (12 players). Also, the range for the number of players of these sports teams is 8 players.
A Checking
4. Determine the maximum, minimum, and range for each set of data.
   a) 6, 7, 9, 5, 2, 11
   b) 12, 14, 18, 19, 13, 11
   c) 25, 20, 19, 27, 26, 24
   d) 33, 28, 34, 31, 38, 32

B Practising
5. Determine the maximum for each set of data.
   a) 42, 41, 47, 44, 40, 48
   b) 21, 22, 25, 20, 26, 30
   c) 50, 55, 52, 44, 47, 56
   d) 71, 70, 68, 69, 60, 62
   e) 2.6, 5.9, 3.5, 4.4, 4.2
   f) 108, 101, 110, 124, 120

6. Determine the minimum for each set of data.
   a) 80, 81, 79, 75, 44, 56
   b) 22, 23, 25, 28, 26
   c) 33, 35, 36, 39, 30, 29
   d) 44, 48, 29, 58, 50
   e) 3.3, 3.0, 3.9, 3.5, 3.8
   f) 109, 124, 136, 118, 125

7. Calculate the range for each set of data.
   a) 10, 11, 9, 15, 14, 13
   b) 22, 24, 26, 28, 30
   c) 44, 45, 40, 48, 50, 57
   d) 107, 110, 99, 111, 120
   e) 2.7, 2.5, 2.2, 2.9, 2.1

8. Marcus bowls in a league. His scores for the nine games he has bowled in the last three weeks are: 177, 180, 191, 155, 168, 202, 199, 185, and 194.
   a) Determine the maximum, the minimum, and the range for the set of Marcus’ scores.
   b) Interpret the values in part a).

9. The ages of the members of the school math team are listed in the table below.

<table>
<thead>
<tr>
<th>Age</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>

   a) Determine the maximum for this set of data.
   b) Determine the minimum for this set of data.
   c) Calculate the range for this set of data.
   d) Interpret the results found in parts a), b), and c).

10. If the range of a data set is 14 and the minimum is 5, determine the value of the maximum.

C Extending
11. The range of five numbers is 10. The maximum of these five numbers is 22. If the maximum is removed and replaced with a new maximum, 21, what would the new range be?

12. Calculate the mean, the median, the mode, and the range for each of the following data sets.
   a) 12, 12, 9, 18, 11, 10
   b) 21, 25, 27, 26, 31
   c) 54, 66, 31, 48, 70, 25
   d) 101, 111, 92, 111, 120, 101
   e) 2.5, 2.5, 2.5, 2.8, 2.1, 3.2