1. Estimate the three quartiles for the below graph.

\[ Q_1 = 5.359 \quad (3-8) \]
\[ Q_2 = 11.716 \quad (9-15) \]
\[ Q_3 = 20 \quad (17-23) \]

2. If the median is the value closest to every other point, why is the mean so often used in inferential statistics? **IT IS MORE STABLE**

**ARITHMETIC**

**SUM OF SIGNED ERROR EQUALS ZERO**

(IE. DOESN'T OVER-OR UNDER-EST.)

3. Alex is doing a study on athlete's uniform number. He asked eleven athletes what their number was. The data is as follows: 2, 9, 4, 9, 3, 4, 4, 12, 5, 8, 6. Calculate the most appropriate measure of central tendency (mode, median, mean).

4. The sum of squares for a set of seven numbers is 175. What is the standard deviation?

\[ \sqrt{\frac{175}{7}} = \sqrt{25} = 5 \]

5. Estimate the AAD (the Average Absolute Deviation – not the standard deviation) for the below distribution.

6. Draw an appropriate graph using the x-axis (therefore, no pie charts, stem-and-leaf graphs, etc.) for the below data.

The sample was asked, "What is your area code?"

<table>
<thead>
<tr>
<th>Area Code</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>213</td>
<td>40</td>
</tr>
<tr>
<td>343</td>
<td>30</td>
</tr>
<tr>
<td>609</td>
<td>10</td>
</tr>
<tr>
<td>714</td>
<td>50</td>
</tr>
<tr>
<td>949</td>
<td>60</td>
</tr>
</tbody>
</table>

7. Draw a Mesokurtic distribution

8. There is a list of numbers. It is the entire population. Please calculate the standard deviation of these four numbers. You must show all your work. 4, 8, 10, 16.

\[ \bar{x} = 9.5 \]
\[ 4 \quad 8 \quad 10 \quad 16 \]
\[ -5.5 \quad -1.5 \quad .5 \quad 6.5 \]
\[ 30.25 \quad 2.25 \quad .25 \quad 42.25 \]

\[ SS = 75 \]
\[ SD = \sqrt{\frac{75}{4}} = 4.33 \]

9. There is a list of 20 scores. Amy calculates the standard deviation of these twenty numbers. Bob comes along and adds the number sixteen to each of these 20 scores. What happens to the standard deviation?

**NOTHING**