(1) For the following questions, consider a data set that exhibits a normal distribution. Report the answers to the nearest 0.01%.

(a) How much of the data lies below the value corresponding to \( Z = 1.1 \)?
86.43%

(b) How much of the data lies between the values corresponding to \( Z = 1.1 \) and \( Z = 1.3 \)?
3.89%

(c) How much of the data lies between the values corresponding to \( Z = -1.1 \) and \( Z = 1.3 \)?
76.75%

(2) For the following questions, consider a data set that exhibits a normal distribution. Report the answers to the nearest 0.01.

(a) What is the Z score for the value that is larger than 28.1% of the data?
\[ Z = -0.58 \]

(b) What is the Z score for the value that is smaller than 6.3% of the data?
\[ Z = 1.53 \]

(c) Consider a portion of the data bounded above and below by certain Z scores. If we consider a region bounded below by \( Z = 0.4 \), what is the Z score of the upper bound if the region contains 11.5% of the data?
\[ Z = 0.74 \]

(3) Consider a set of 800 of normally distributed data values with a mean of 23 and a standard deviation of 5.0

(a) How many values are larger than 27.00
\[ \# = 170 \]

(b) How many values are between 23.00 and 28.00?
\[ \# = 273 \]

(c) What is your best estimate for the value of Q3?
\[ Q3 = 26.375 \]

(4) Imagine that we take a sample from a population of interest. For the following questions use the sample values to the right:

Sample data

<table>
<thead>
<tr>
<th>16</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>17</td>
</tr>
</tbody>
</table>

Assume that this sample accurately reflects the mean and standard deviation of the population so you can use the normal distribution and Z scores for the problems below. (If you’ve read ahead in your book or lab manual you know we should really use t scores, don’t worry about this right now, use the Z scores)

(a) Assuming that the population data is normally distributed, what is the value that you expect 67% of the data in the population to be smaller than?
\[ \text{Val.} = 20.53 \]

(b) What is your best estimate for the IQR of the population data?
\[ \text{IQR} = 3.53 \]