1. Jayma recorded the time it takes her to get to school using three different routes.

<table>
<thead>
<tr>
<th>Hour</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 1 (min)</td>
<td>12</td>
<td>8</td>
<td>11</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Route 2 (min)</td>
<td>14</td>
<td>9</td>
<td>12</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Route 3 (min)</td>
<td>6</td>
<td>14</td>
<td>10</td>
<td>9</td>
<td>11</td>
</tr>
</tbody>
</table>

On which route does Jayma have a more consistent travel time?
   a. Route 1
   b. Route 3
   c. Route 2

2. Which set is normally distributed?

<table>
<thead>
<tr>
<th>Interval</th>
<th>0–9</th>
<th>10–19</th>
<th>20–29</th>
<th>30–39</th>
<th>40–49</th>
<th>50–59</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set A.</td>
<td>2</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Set B.</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Set C.</td>
<td>1</td>
<td>5</td>
<td>9</td>
<td>10</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Set D.</td>
<td>8</td>
<td>9</td>
<td>3</td>
<td>11</td>
<td>8</td>
<td>14</td>
</tr>
</tbody>
</table>

   a. Set A.
   b. Set B.
   c. Set D.
   d. Set C.

3. Determine the percent of data between the following z-scores: $z = -1.50$ and $z = 1.50$.

   a. 47.20%
   b. 100%
   c. 94.41%
   d. 86.63%
4. A poll was conducted about an upcoming election. The results are considered accurate within ±3.8 percent points, 9 times out of 10. State the confidence level.
   a. 99%
   b. 95%
   c. 19%
   d. 90%

5. A poll was conducted about an upcoming election. The result that 54% of people intend to vote for one of the candidates is considered accurate within ±7.1 percent points, 19 times out of 20. State the confidence interval.
   a. 46.9%–61.1%
   b. 54%–61.1%
   c. 47.1%–60.9%
   d. 46.9%–54%

6. The results of a survey have a confidence interval of 88.7% to 90.5%, 99 times out of 100. Determine the margin of error.
   a. ±0.9%
   b. ±1.1%
   c. ±0.7%
   d. ±1.3%

7. At the end of a bowling tournament, three friends analyzed their scores.
   Lada’s mean bowling score is 125 with a standard deviation of 27.
   Quinn’s mean bowling score is 182 with a standard deviation of 28.
   Kamal’s mean bowling score is 170 with a standard deviation of 20.

   Who is the more consistent bowler?
   a. Impossible to tell.
   b. Quinn
   c. Kamal
   d. Lada

   ![Comment: The one with the smallest standard deviation is Lada.]

Unit 5 Statistics Page 2
8. Which histogram represents the following test scores?
Geography Test 3 Scores (out of 100)
92 85 78 67 54
92 83 78 65 53
89 83 77 62 49
88 79 75 62 48
86 79 68 59 42

a.  

b.  

c.  

d.  
Short Answer

9. Using 68%, 95%, 99.7% intervals, with mean 12 and standard deviation of 3.5.

Find percentage between:
   a. 1.5cm and 22.5cm
   b. 5cm and 15.5 cm
   c. Greater than 19 cm

   \[
   \begin{array}{c}
   a) P(1.5 < x < 22.5) = 0.9977, \\
   b) P(5 < x < 15.5) = 0.8159, \\
   c) P(x > 19) = 0.0025.
   \end{array}
   \]

10. A company measured the lifespan of a random sample of 40 batteries in their MP3 players. Times are in hours.

\[
\begin{array}{cccccccccc}
7.8 & 11.0 & 10.5 & 8.8 & 9.1 & 9.4 & 11.2 & 9.4 & 8.6 & 9.0 \\
9.3 & 8.5 & 7.9 & 9.1 & 7.2 & 9.3 & 9.4 & 9.7 & 10.6 & 8.5 \\
9.2 & 8.2 & 7.4 & 8.8 & 8.6 & 8.0 & 8.0 & 11.1 & 9.2 & 11.4 \\
8.2 & 9.6 & 8.5 & 10.5 & 10.7 & 9.5 & 11.4 & 8.2 & 9.7 & 8.5 \\
\end{array}
\]

   a) Choose an interval width so you have seven intervals.
   b) Create a frequency table for the data.
   c) Find the mean and standard deviation.

   d) The company will refund the cost if the battery dies under 7 hours. From 10,000 batteries sold, how many will be refunded?

   \[
   P(z < -2.01) = 0.0222 \Rightarrow \frac{2220}{10,000} \text{ out of 10,000 last less than 7 hrs. That's 222 batteries refunded.}
   \]

11. Students were surveyed to determine the number of text messages they send. They found a mean of 15 and a standard deviation of 3.4. Determine the percentage of students that text:

   a. Between 14 and 17 per day.
   b. Less than 10 per day.
   c. More than 25 per day.
   d. Per day.
   e. Calculate the number of texts that up to 85% of students send per day.

   \[
   \begin{array}{c}
   a) z = \frac{14 - 15}{3.4} = -0.294, \quad 0.5670, \\
   b) z = \frac{25 - 15}{3.4} = 2.94, \quad P(z > 2.94) = 0.0016, \\
   e) P(z < a) = 0.85 \\
   a = 1.04 \\
   \end{array}
   \]

12. The results of a survey regarding the percentage of people who actually vote in a Federal Election shows a confidence interval of 88.7% to 90.5%, 99 times out of 100.

   Determine:
   a. the confidence level.
   b. the margin of error.
   c. the confidence interval range for 50,000 people surveyed.
   d. Explain the results.

   With 99%, confidence, 44,350 to 45,250 will vote in the Federal election.