1) The two-way table below shows the results from a survey of male and female students about whether they prefer Math or Language Arts.

a) **Complete** the two-way table and find the relative frequency (rounded to the nearest hundredth) of male students that prefer math to all male students surveyed. (Hint: find the relative frequencies by row)

- **Gender**
  - **Males**
    - Math: 38
    - LA: 12
  - **Females**
    - Math: 17
    - LA: 33

b) Bill is a new student who just transferred to Berkmar. Is Bill more or less likely to enjoy Math or Language Arts? **Explain** how you know.

2) Juan was curious to discover if middle school students and high school students liked the same gaming consoles. He surveyed 100 students and found the following:

- 27 of the 50 middle school students preferred PS3 over XBox 360
- 24 of the 50 high school students preferred XBox 360 over PS3

a) Construct a two-way table for the results.

b) Complete the two-way table and find the relative frequencies (to the nearest hundredth) by column.

c) According to the data, would you say that middle school students and high school students have similar or different preferences? **Why**?

3) With summer quickly approaching, teachers were attempting to determine if they need to offer swimming lessons for students. Answer the following questions based off the data:

a) How many 8th graders were surveyed?

b) By simply looking at the data, which grade would you expect to have the largest percentage of students unable to swim?

C) Calculate the percentage (rounded to the percent) of students for each grade that cannot swim and fill in the accompanying table with the results.
6) Matt wanted to test if a person’s intelligence level is in anyway related to their preference for Justin Bieber. Therefore, he surveyed several of his friends by asking them two simple questions:

1. Do you currently possess a B or higher in your math class?
2. Do you currently own a Justin Bieber album?

Matt recorded his data in two t-charts as seen below.

<table>
<thead>
<tr>
<th>Own a Bieber Album</th>
<th>Don’t Own a Bieber Album</th>
</tr>
</thead>
<tbody>
<tr>
<td>A or B</td>
<td>C or Lower</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It wasn’t until after he recorded this data that he realized it would be much easier to analyze the data in a two-way table.

Help Matt create a two-way table below to help him answer the following questions.

a) What percentage of his friends own a Justin Bieber album?

b) What percentage of his A/B friends own a Justin Bieber album?

c) How many more of his friends have an A/B in math than a C or lower?
1) The two-way table below shows the results from a survey of male and female students about whether they prefer Math or Language Arts.

a) **Complete** the two-way table and find the relative frequency (rounded to the nearest hundredth) of male students that prefer math to all male students surveyed.  (Hint: find the relative frequencies by row)

b) Bill is a new student who just transferred to Berkmar.  Is Bill more or less likely to enjoy Math or Language Arts?  **Explain** how you know.  

Since Bill is a male, he is more likely to enjoy math.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Math</th>
<th>LA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>38</td>
<td>12</td>
<td>50</td>
</tr>
<tr>
<td>Females</td>
<td>17</td>
<td>33</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55</strong></td>
<td><strong>45</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

\[
\frac{38}{50} = .76
\]

2) Juan was curious to discover if middle school students and high school students liked the same gaming consoles.  He surveyed 100 students and found the following:

- 27 of the 50 middle school students preferred PS3 over XBox 360
- 24 of the 50 high school students preferred XBox 360 over PS3

a) Construct a two-way table for the results.

b) Complete the two-way table and find the relative frequencies (to the nearest hundredth) by column.

c) According to the data, would you say that middle school students and high school students have similar or different preferences?  **Why?**

They have pretty similar preferences.

<table>
<thead>
<tr>
<th>School</th>
<th>XBox 360</th>
<th>PS3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS</td>
<td>23 = .49</td>
<td>27 = .51</td>
<td>50 = 50</td>
</tr>
<tr>
<td>BHS</td>
<td>24 = .51</td>
<td>26 = .49</td>
<td>50 = 50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>47 = 1.0</strong></td>
<td><strong>53 = 1.0</strong></td>
<td><strong>100 = 100</strong></td>
</tr>
</tbody>
</table>

3) With summer quickly approaching, teachers were attempting to determine if they need to offer swimming lessons for students.  Answer the following questions based off the data:

a) How many 8th graders were surveyed?  **300**

b) By simply looking at the data, which grade would you expect to have the largest percentage of students unable to swim?  **8th (it’s not correct)**

c) Calculate the percentage (rounded to the percent) of students for each grade that cannot swim and fill in the accompanying table with the results.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Can Swim</th>
<th>Cannot Swim</th>
<th>% Cannot Swim</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th Grade</td>
<td>60</td>
<td>120</td>
<td>67%</td>
</tr>
<tr>
<td>7th Grade</td>
<td>20</td>
<td>180</td>
<td>90%</td>
</tr>
<tr>
<td>8th Grade</td>
<td>35</td>
<td>265</td>
<td>88%</td>
</tr>
</tbody>
</table>
6) Matt wanted to test if a person’s intelligence level is in anyway related to their preference for Justin Bieber. Therefore, he surveyed several of his friends by asking them two simple questions:
1. Do you currently possess a B or higher in your math class?
2. Do you currently own a Justin Bieber album?
Matt recorded his data in two t-charts as seen below.

It wasn’t until after he recorded this data that he realized it would be much easier to analyze the data in a two-way table.

Help Matt create a two-way table below to help him answer the following questions.

a) What percentage of his friends own a Justin Bieber album?
   \[ \frac{52}{100} = 52\% \]

b) What percentage of his A/B friends own a Justin Bieber album?
   \[ \frac{71}{100} = 71\% \]

c) How many more of his friends have an A/B in math than a C or lower?
   \[ 15 \]

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4) There were 100 customers in a restaurant that were asked whether they like chicken or beef, and whether they liked rice or pasta. Out of 30 customers that liked rice, 20 liked chicken. There were 60 customers that liked chicken.

5) As each person entered the theater, Aaron counted how many of the 105 people had popcorn and how many had a drink. He found that out of 84 people that had popcorn, only 10 did not have a drink. Six people walked in without popcorn or a drink.