Today in Class:
• Review Homework
• 10.2 Unbiased and Biased Samples Notes (WS)
• Begin Homework

Determine whether the conclusion is valid. Justify your answer.

1. A random sample of students at a middle school shows that 10 students prefer listening to rock, 15 students prefer listening to hip hop, and 25 students prefer listening to no music while they exercise. It can be concluded that half the students prefer no music while they exercise.

Unbiased sample → Simple random sample, therefore the conclusion is valid.

2. Every tenth person who walks into a department store is surveyed to determine his or her music preference. Out of 150 customers, 70 stated that they prefer rock music. The manager concludes that about half of all customers prefer rock music.

Systematic random sample, therefore the sample is unbiased and the conclusion is valid.

3. The customers of a music store are surveyed to determine their favorite leisure activity. The results are shown in the graph. The store manager concludes that most people prefer to listen to music in their leisure time.

Convenience sample, therefore the sample is biased and the conclusion is invalid.
4. A radio station asks its listeners to indicate their preference for one of two candidates in an upcoming election. Seventy-two percent of the listeners responded prefer candidate A, so the radio station announced that candidate A would win the election.

Voluntary response sample, therefore the sample is biased and the conclusion is invalid.

5. A store sells 3 types of pants: jeans, capris and cargos. The store workers survey 50 customers at random about their favorite type of pants. The survey responses are shown. If 450 pairs of pants are ordered, how many should be jeans?

\[ \frac{x}{450} = \frac{25}{50} \]

\[ x = 2.25 \]

The store should order 225 jeans.

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeans</td>
<td>25</td>
</tr>
<tr>
<td>Capris</td>
<td>15</td>
</tr>
<tr>
<td>Cargos</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>