Exercise Set #9
Answers to Odd-Numbered Exercises

9-1 (a) There is likely to be a strong positive relationship.

(b) There is likely to be a positive relationship where "test score" increases less as "study time" increases.

(c) There is likely to be no relationship.

(d) There is likely to be a strong negative relationship.

(e) There will be a perfect positive linear relationship.

9-3 (a) The 2009 price of alloy C is 104.5% of the 2008 price. The price rose by 4.5% from 2008 to 2009.

(b) The 2008 quantity of alloy A is 109.1% of the 2007 quantity. The quantity rose by 9.1% from 2007 to 2008.

(c) The 2010 price of alloy B is 92.7% of the 2007 price. The price dropped by 7.3% from 2007 to 2010.

(d) The 2010 quantity of alloy B is 85.7% of the 2007 quantity. The quantity dropped by 14.3% from 2007 to 2010.
9-5 The price of the book in the year 2007 will be smaller than the price of the book in the year 2005, since 10% of the price in the year 2005 is smaller than 10% of the price in the year 2006.

9-7 (a) The line graph suggests that the number of listeners has increased at roughly the same rate from 2000 to 2008.

(b) The line graph based on the number of listeners constructed in part (a) and a line graph constructed from the index numbers would look identical except possibly for a scaling factor.
9-9  (a) $\frac{80}{200} = 40\%$ of south side males are members of a Greek organization
$\frac{320}{800} = 40\%$ of south side females are members of a Greek organization

(b) $\frac{400}{800} = 50\%$ of north side males are members of a Greek organization
$\frac{100}{200} = 50\%$ of north side females are members of a Greek organization

(c) One might expect that for all 2000 students combined, the percentage of members of a Greek organization would be equal among all males combined and among all females combined.

(d) $\frac{480}{1000} = 48\%$ of all males are members of a Greek organization
$\frac{420}{1000} = 42\%$ of all females are members of a Greek organization

<table>
<thead>
<tr>
<th>Sex</th>
<th>Greek Organization</th>
<th>All Students Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Male</td>
<td>480</td>
<td>520</td>
</tr>
<tr>
<td>Female</td>
<td>420</td>
<td>580</td>
</tr>
</tbody>
</table>

(e) The proportion of members of a Greek organization is equal for males and females within each side of campus separately, but this proportion is not equal for males and females among all 2000 students on campus combined. This apparent inconsistency is possible, because the number of males is lower than the number of females among south side students, but the number of males is higher than the number of females among north side students.