Final Review

For problems 1-2, Multiple Choice, chose the best answer.

1.) A poll is conducted in which 500 people are asked whom they would plan to vote for the upcoming 2012 presidential election is an example of a(n) _________________.
   a.) Observational study  b.) Experiment
2.) Your Social Security Number is an example of a(n) ________________ variable.
   a.) quantitative, discrete  b.) quantitative, continuous  c.) qualitative
3.) In a poll taken in April 2010, a sample of 521 adults was asked, "How often do you dine out?" The results of the survey are given in the table below.

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Relative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Several times a week</td>
<td>103</td>
<td>0.199</td>
</tr>
<tr>
<td>Once or twice a week</td>
<td>204</td>
<td>0.392</td>
</tr>
<tr>
<td>A few times a month</td>
<td>130</td>
<td>0.250</td>
</tr>
<tr>
<td>Very rarely</td>
<td>79</td>
<td>0.152</td>
</tr>
<tr>
<td>Never</td>
<td>5</td>
<td>0.001</td>
</tr>
</tbody>
</table>

4.) The following histogram and summary statistics of the data represent the per capita (average) disposable income (income after taxes) for the 50 states and the District of Columbia in 2009.

**Summary statistics:**
**Column** | **Mean** | **Variance** | **Std. dev.** | **Median** | **IQR**
---|---|---|---|---|---
Income | 38525.80 | 4355265415960.41 | 15960.39 | 369357747 |

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a.) Identify the shape of his distribution as either bell-shaped, right-skewed, uniform, left-skewed or bimodal

Skewed Right
4a) Skewed Right
4b) Median
4c) IQR

5)

a) \[ z_1 = \frac{287 - 515}{114} = -2.00 \]
\[ z_2 = \frac{743 - 515}{114} = 2.00 \]

For \( z = -2.00 \), 0.0228 and for \( z = 2.00 \), 0.9772

Probability is 0.9772 - 0.0228 = 0.9544

\[ \text{with } 95.44\% \]

b) \[ z = \frac{287 - 515}{114} = -2.00 \], from part a,

probability is 0.0228,

it is 2.28%
(a) 
\[ \text{Min} = 10 \]
\[ Q_1 = 29.5 \]
\[ Q_2 = 123 \]
\[ Q_3 = 135.5 \]
\[ \text{Max} = 316 \]

(b) Correction for check 10, not 18.
- Value < \( Q_1 - 1.5(Q_3 - Q_1) \)
  - \( 10 < 29.5 - 1.5(135.5 - 29.5) \)
  - \( 10 < 29.5 - 159 \)
  - \( 10 < -129.5 \), false, so 10 (or even 18) are not outliers.

- Value > \( Q_3 + 1.5(Q_3 - Q_1) \)
  - \( 316 > 135.5 + 1.5(135.5 - 29.5) \)
  - \( 316 > 135.5 + 159 = 394.5 \)
  - OVER
6b continued

316 > 294.5, is true. So 316 is an outlier.
Note 150 is not an outlier.

(c) \( Q_1 = 29.5 \quad Q_2 = 123 \quad Q_3 = 135.5 \)

7)
a) explanatory variable is Right Humerus, while
the response variable is Right Tibia

b) Plugging 25.31 into the equation

\[
\text{Right Tibia} = 1.1139527 + 1.3901719(25.31)
\]

\[
\text{Right Tibia} = 36.30\text{mm}
\]

c) residual = ? observed y =