1. The table below shows the average daily energy requirements for male children and adolescents:

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>1</th>
<th>2</th>
<th>5</th>
<th>8</th>
<th>11</th>
<th>14</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Needed (Calories)</td>
<td>1100</td>
<td>1300</td>
<td>1800</td>
<td>2200</td>
<td>2500</td>
<td>2800</td>
<td>3000</td>
</tr>
</tbody>
</table>

a) Graph the data and state the correlation.

b) Model the data with a linear equation

c) Estimate the daily requirement for a 16 year old male.

d) Do you think your model also applies to adult males? Explain.

2. The table below shows the relationship between Calories and fat in various fast-food hamburgers:

<table>
<thead>
<tr>
<th>Hamburger</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>720</td>
<td>530</td>
<td>510</td>
<td>500</td>
<td>305</td>
<td>410</td>
<td>440</td>
<td>320</td>
<td>598</td>
</tr>
<tr>
<td>Fat (g)</td>
<td>46</td>
<td>30</td>
<td>27</td>
<td>26</td>
<td>13</td>
<td>20</td>
<td>25</td>
<td>13</td>
<td>26</td>
</tr>
</tbody>
</table>

a) Graph the data and state the correlation

b) Model the data with a linear equation

c) How much fat would you expect a 330-Calorie hamburger to have?

d) A student reports these estimates: 10 g of fat for a 200-Calorie hamburger and 36 g of fat for a 660-Calories hamburger. Which is estimate is not reasonable? Explain.
3. The table below shows population and licensed driver statistics from a recent year:

<table>
<thead>
<tr>
<th>State</th>
<th>Alabama</th>
<th>Florida</th>
<th>Louisiana</th>
<th>S. Carolina</th>
<th>Virginia</th>
<th>W. Virginia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (millions)</td>
<td>4.3</td>
<td>14.7</td>
<td>4.4</td>
<td>3.8</td>
<td>6.7</td>
<td>1.8</td>
</tr>
<tr>
<td>Licensed Drivers (millions)</td>
<td>3.2</td>
<td>11.6</td>
<td>2.7</td>
<td>2.6</td>
<td>4.7</td>
<td>1.3</td>
</tr>
</tbody>
</table>

a) What variable should be the independent variable?
b) Graph the data and state the correlation.
c) Model the data with a linear equation
d) The population of Oregon was approximately 3 million that year. About how many licensed drivers lived in Oregon?
e) Is the correlation between population and number of licensed drivers strong or weak? Explain.

4. The table below shows expenditures for national health care from 1992 through 1997:

<table>
<thead>
<tr>
<th>Year</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Heath Care Expenditures (billions of dollars)</td>
<td>1,142.6</td>
<td>1,209.0</td>
<td>1,286.6</td>
<td>1,377.2</td>
<td>1,494.1</td>
<td>1,636.4</td>
</tr>
</tbody>
</table>

a) Graph the data and state the correlation.
b) Model the data with a linear equation
c) Based on your model, predict how much money was spent on health care in 2010.
1a)

**DAILY ENERGY REQUIREMENTS FOR MALES**

\( r = .99 \)

\[
\text{Energy Needed} = 1110.68 + 119.40(\text{Age})
\]

c) \( 3021.09 \) calories

d) No- adults need fewer calories (not more)
b) Fat Grams = − 9.2682 + .0714(Calories) − 9.2682

c) 14.30 grams

d) 200 calorie burger ---> 5.01 fat grams ---> 10 fat grams not reasonable

660 calorie burger ---> 37.86 fat grams ---> 36 fat grams reasonable
3a) Population (use to predict licensed drivers)

b) LICENSED DRIVERS = – .4842 + .8125(Population)

d) 1.95 million

e) Strong correlation (99.7)… all points fall close to a straight line
4a) \[ r = .9896 \]

b) Health Expenditures = \(-19373.71 + 97.57(\text{Year})\)

\[
\begin{align*}
&1997, 1998... \\
\end{align*}
\]

Health Expenditures = \(-8350.42 + 97.57(\text{Year})\)

\[
\begin{align*}
&97, 98... \\
\end{align*}
\]

Health Expenditures = \(430.75 + 97.57(\text{Year})\)

\[
\begin{align*}
&7, 8... \\
\end{align*}
\]

c) $2382.12 Billion (Actual was $2593.6 Billion)