1. The Rent-a-Car Company charges $30.50 per day car rental. They also charge $0.24 per mile driven if you return the car with less than a full tank of gas. Write a function \( C(m) \) to describe the total cost for someone who rented a car for one day and did not fill the gas tank before returning the car, if \( m \) miles were driven. Then use your model to find the cost for someone who drove 120 miles.

2. A business uses straight-line depreciation to determine the value \( y \) of an automobile over a 5-year period. Suppose the original value (when \( t = 0 \)) is equal to $23,500 and the salvage value (when \( t = 5 \)) is equal to $8500.
   a. By how much has the automobile depreciated over the 5 years?
   b. By how much is the value of the automobile reduced at the end of each of the 5 years?
   c. Write the linear equation that models the value \( x \) of this automobile at the end of year \( t \).

3. Each day a young person should sleep 8 hours plus \( \frac{1}{4} \) hour for each year the person is under 18 years of age.
   a. Based on this information, how much sleep does a 10-year-old need?
   b. Based on this information, how much sleep does a 14-year-old need?
   c. Use the answers from parts (a) and (b) to write a linear equation relating hours of sleep \( y \) to age \( x \), for \( 6 \leq x \leq 18 \).
   d. Use our equation from part (c) to verify that an 18-year-old needs 8 hours of sleep.

4. The value of an initial investment of $2350 each year for the first 5 years is shown in the table below.

<table>
<thead>
<tr>
<th>Year</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value ($)</td>
<td>2350</td>
<td>2525</td>
<td>2700</td>
<td>2875</td>
<td>3050</td>
<td>3225</td>
</tr>
</tbody>
</table>

   a. Find the average rate of change of the value of the investment with respect to the number of years.
   b. Use the average rate of change and a point to write an equation of a linear model for this data.