1. [10 points] Some values of the invertible, differentiable function \( G(t) \) are shown in the table below, along with some values of \( G'(t) \), the derivative of \( G(t) \).

<table>
<thead>
<tr>
<th>( t )</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>( G(t) )</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>7</td>
<td>8</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>( G'(t) )</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

For parts a. – d., find the exact numerical values, or write DNE if the value does not exist. Your answers should not include the letter \( G \), but you do not need to simply. Show your work.

a. [2 points] Let \( P(t) = t^3G(t) \). Find \( P'(2) \).

Answer: \( P'(2) = \) ______________

b. [2 points] Let \( A(t) = \frac{G(3t + 2)}{2t + 1} \). Find \( A'(1) \).

Answer: \( A'(1) = \) ______________

c. [2 points] Let \( K(t) = G^{-1}(t) \). Find \( K'(2) \).

Answer: \( K'(2) = \) ______________

d. [2 points] Let \( R(t) = \ln(G(t)) \). Find \( R'(5) \).

Answer: \( R'(5) = \) ______________

e. [2 points] Gabby the gopher is furiously digging an underground tunnel. Suppose \( G(t) \) gives the length in meters of Gabby’s tunnel \( t \) hours after she started digging at 6am.

Fill in the blank with a number to give a practical interpretation of the fact that \( G'(5) = 3 \).

Gabby’s tunnel was about __________ meters longer at 11:05am than it was at 10:55am.