1. (2 points each) True or False. Circle True only if the statement is always true.

(a) The inverse function of \( g(t) = (1.04)^t \) is \( g^{-1}(t) = \frac{\ln(t)}{\ln(1.04)} \). T F

(b) \( \ln(2^x + 2^{-x}) = 0 \) T F

(c) If \( 22 = 18\kappa^{2x} \), then \( \kappa = 1.003 \). T F

(d) \( \log(67.34(1.03)^t) = t(\log(67.34) + \log(1.03)) \) T F

(e) The graph of the function \( s(t) = 2\sin(2t + 3) \) is the graph of the function \( y = 2\sin(2t) \) shifted 3 units to the left. T F

(f) If \( f' \) is increasing, then \( f \) is increasing. T F

2. (6 points) A function \( f(x) \) has values given in the following table. Estimate the value of its derivative at \( x = 1 \).

<table>
<thead>
<tr>
<th>( x )</th>
<th>.9</th>
<th>.98</th>
<th>.996</th>
<th>1.0</th>
<th>1.004</th>
<th>1.02</th>
<th>1.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>( f(x) )</td>
<td>.7969</td>
<td>.8342</td>
<td>.8410</td>
<td>.8427</td>
<td>.8444</td>
<td>.8508</td>
<td>.8802</td>
</tr>
</tbody>
</table>

\[
\frac{f(1.004) - f(1)}{0.004} \approx 1.25
\]

\[
\frac{f(1.976) - f(1)}{-0.004} \approx 1.25
\]

\[
\frac{f(1.001) - f(1.976)}{0.008} \approx 1.25
\]