1. (3pts) Give the domain of \( g(x) = 2\sqrt{1 + 3x} \). Specify the domain in **an interval notation**.

2. (3pts) The graph of \( f(x) \) is given below. Find the following.

   1. State the interval(s) on which \( f(x) < 0 \).
   2. Give the domain (interval notation) of \( g(x) = \frac{1}{f(x)} \).
   3. Extra 2 points:
      Give the domain (in interval notation) of \( h(x) = \sqrt{f(x)} \).

3. (3pts) Based on the graph of \( f(x) \) given below find the limits.

   \[ a. \ \lim_{x \to 1^-} f(x) = \]
   \[ b. \ \lim_{x \to 1^+} f(x) = \]
   \[ c. \ \lim_{x \to 1} f(x) = \]
   \[ d. \ \lim_{x \to -2} f(x) = \]
   \[ e. \ \lim_{x \to 2} f(x) = \]

4. (3pts) (i) Complete the following table by a calculator with at least 8 decimal digits:

<table>
<thead>
<tr>
<th>( x )</th>
<th>( \frac{x^2 - 4}{x - 1} )</th>
<th>( \frac{x^2 - 4}{x - 2} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.99999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.999999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.9999999</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(ii) Based on the results obtained in the table, find numerically the limits

\[ \lim_{x \to 2^-} \frac{x^2 - 4}{x - 1} = \]
\[ \lim_{x \to 2^-} \frac{x^2 - 4}{x - 2} = \]