8. [12 points] The predicted times and heights of the high and low tides for the seaside village of Portwenn during a certain day are:

<table>
<thead>
<tr>
<th>Time of day</th>
<th>Low/High Tide Height (in meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:30</td>
<td>4.8</td>
</tr>
<tr>
<td>06:30</td>
<td>14.4</td>
</tr>
<tr>
<td>12:30</td>
<td>4.8</td>
</tr>
<tr>
<td>18:30</td>
<td>14.4</td>
</tr>
</tbody>
</table>

(a) Find a sinusoidal function in standard form, \( h(t) = A \sin\left(\frac{2\pi}{B}(t - C)\right) + D \), which models the tide height data for Portwenn at \( t \) hours past midnight, on the given day.

(b) Sketch the graph of the function \( y = h(t) \), for \( 0 \leq t \leq 24 \) hours.

(c) A boat requires a tide height of 10 meters or more to be able to enter a harbor. Compute all the time intervals during this day when the boat could enter the Portwenn harbor.