Anatomy of a Wave Worksheet Answers

Objective: Identify the parts of a wave and draw your own diagrams of waves.

Background: Many types of waves exist, including electromagnetic waves and mechanical waves. Waves move in different ways and have different properties.

Part 1
In the diagram below, identify the parts of a wave by using the provided definitions.

1. \( \text{crest} \) = The highest point of the wave above the line of origin.
2. \( \text{trough} \) = The lowest point of the wave below the line of origin.
3. \( \text{line of origin} \) = Signifies the original position of the medium.
4. \( \text{wavelength} \) = The distance between two consecutive crests.
5. \( \text{amplitude} \) = The distance from the line of origin to a crest or trough of a wave.

![Wave diagram]

Part 2
On separate sheets of graph paper, draw four different waves with the following measurements. Label the parts and include the measurements.

<table>
<thead>
<tr>
<th>wave #</th>
<th>crest</th>
<th>trough</th>
<th>wavelength</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 cm</td>
<td>1 cm</td>
<td>2 cm</td>
</tr>
<tr>
<td>2</td>
<td>3.5 cm</td>
<td>3.5 cm</td>
<td>2.5 cm</td>
</tr>
<tr>
<td>3</td>
<td>.5 cm</td>
<td>.5 cm</td>
<td>3 cm</td>
</tr>
<tr>
<td>4</td>
<td>2 cm</td>
<td>2 cm</td>
<td>.5 cm</td>
</tr>
</tbody>
</table>

Concluding question: State which wave you think has the highest frequency and which might have the lowest frequency. Explain the reasons for your selections.

#4 has the highest frequency because it has the shortest wavelength, and frequency is inversely proportional to wavelength.

#3 has the lowest frequency because it has the longest wavelength, and frequency is inversely proportional to wavelength.