VOLUME

regular shaped: \( V = lwh \) 

irregular shape: water displacement

\[ \text{_volume} = \text{mass} \]

\[ \text{Density} = \frac{\text{mass}}{\text{volume}} \]

• The amount of matter (mass) in a given space (volume)

• density of an object does not change with shape or size

• density of water is 1g/cm\(^3\)
Water is most dense at 4°C, when it is a liquid.

Properties of Water

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy gained during melting</td>
<td>80 calories/gram</td>
</tr>
<tr>
<td>Energy released during freezing</td>
<td>80 calories/gram</td>
</tr>
<tr>
<td>Energy gained during vaporization</td>
<td>540 calories/gram</td>
</tr>
<tr>
<td>Energy released during condensation</td>
<td>540 calories/gram</td>
</tr>
<tr>
<td>Density at 3.98°C</td>
<td>1.00 gram/milliliter</td>
</tr>
</tbody>
</table>

What is the contour interval on this map? 20 ft

What is the elevation of points (a) and (b)?

<table>
<thead>
<tr>
<th>Point</th>
<th>Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>540</td>
</tr>
<tr>
<td>b</td>
<td>580</td>
</tr>
</tbody>
</table>

What is the maximum possible elevation of (c)? 619
Hachured Lines

What do hachured lines show?
areas of depression (decreasing elevation)

What are the rules concerning hachured lines?

- the first hachured line has the same elevation as the previous line.
- the second hachured line decreases in elevation
Making A Topographic Profile I

The closer the isolines are the steeper the slope or gradient.

Gradient = \( \frac{\text{change in field value}}{\text{distance}} \)
Latitude lines are drawn east-west and measure angular distance north and south.

Longitude lines are drawn north-south, and measure angular distances east and west.

Longitude is based on observations of the sun.
When calculating percent deviation, the accepted value is the correct answer while the measured value is subject to error.

\[
\text{deviation (\%)} = \frac{\text{difference from accepted value}}{\text{accepted value}} \times 100
\]