Problem:
Develop a generic algorithm that computes the volume (V) and surface area (SA) of a rectangular prism as shown. The center of the radius will always be located at the intersection of the front and left vertical faces. Include error handling in the sense that R can never be greater than T, T must always be less than W and the length of this edge (E) must be greater than 0.

User inputs will be as follows:
H (5)
W (7)
D (6)
T (3.5)
R (1.75)
A (30°)

You must use the following formulas to generate your basic intermediate values:

Area
- \( \text{base} \times \text{height} \)
- \( \frac{\text{base} \times \text{height}}{2} \)
- \( \pi R^2 \)
- \( \pi d \)

Volume
- area \( \times \) linear dimension

First, using Engineering Paper, trace the Isometric figure in the lower right corner. Produce Front, Top, Left and a partial auxiliary view of the object (to scale). Label these surfaces and edges as shown.

Only use these surfaces and dimensions (along with H, W, D etc.) for computing the area and volume.
Produce an ITO chart of your algorithm. This must be done using a table in Word. Make sure that you use symbolic (variable) names when producing this chart.

Do **not** combine intermediate formulas together!
You need to use a trig function to calculate intermediate linear dimensions.

After printing your ITO chart, make a copy of it and substitute the actual values shown above replacing all your symbolic variables. The format will be similar to what was used for Homework 5.

Re-print your ITO chart showing the numeric result. **No** Flowchart is required.

Additional Hints:
Since we need to do some error handling, refer to the Reading titled General Problems Solving Examples (Homework 5). On page 1 there is logic defined (3a) under Problems encountered. Use this methodology in your solution.

Example:

<table>
<thead>
<tr>
<th>Check to make sure that ( R ) is less than or equal to ( T )</th>
</tr>
</thead>
<tbody>
<tr>
<td>If ( R &gt; T ) Then</td>
</tr>
<tr>
<td>Display Error Message: “( R ) must be less than ( T )”</td>
</tr>
<tr>
<td>STOP</td>
</tr>
<tr>
<td>End If</td>
</tr>
</tbody>
</table>

Keep in mind that there should be three error checks done based on the problem definition.

Staple your documentation together in the following order:
ITO Chart (Symbolic)
ITO Chart (Numeric)
Sketch