Instructions:

- Use cell references whenever possible.
- Be sure to use values as determined by previous problems and do not use values from problems that have not yet been solved per the ordering of the questions.
- TRUE/FALSE values in the worksheets are *always* Boolean values; NOT text values.
- Do not use unnecessary (i.e. not needed) functions
- Don’t use a $ if NOT copying.
- No additional cell references, or assumed cell values, can be used other than the ones given.
- Your answer should update correctly when additional input data is added to the problem or when input data is changed.
The *area* worksheet specifies 5 areas of the country (in column A), whether or not they get a lot of fog as a Boolean value in column B, and both snow and rainfall approximations in columns C and D, respectively, measured in inches.

The *weather* worksheet specifies a unique numeric value (in column A) for each city/state (columns B/C) in a particular area (in column D) of the country.

4. (20 pts) In column weather!E3, write an Excel Formula that can be copied down and across to cell weather!F12, to determine the amount of snow Boston, MA gets based on the area of the country the city resides. NOTE: The constants in cells weather!E1:F1 are given for a reason.
5. (15 pts) In cell area!E2, write an Excel formula that can be copied down to cell area!E6, to determine if there is more snow than rain in the city, more rain than snow, or if the city gets an equal amount of both rain and snow (see the worksheet for the appropriate text result values).

6. (10 pts) In cell area!F2, write an Excel formula that can be copied down to area!F6, to determine the number of cities that are listed on the weather worksheet which are in the North area.

7. (10 pts) In cell area!G2, write an Excel formula that can be copied down to area!G6, to determine true or false, if the North area has both fog and higher than average snowfall compared to the other areas of the country.

8. (5 pts) Does this formula determine if none of the cities have fog? =NOT(OR(area!B2:B6))

   Answer ➔ (circle one)  YES  NO
1. (15 pts) Based on the data given in the below worksheet snip with C1 being the active cell (i.e. you have clicked on cell C1), write an Excel formula in cell C2 to determine the volume of a cone. The equation to calculate the volume of a cone (see below) is one-third times π r squared times h where π is the constant value designated in C1, r is the radius in cell A3 and h is the height in cell B3. Be sure to use the named range as shown in the worksheet snip.

\[ V = \frac{1}{3} \pi r^2 h \]

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>volume</td>
<td>3.14159</td>
</tr>
<tr>
<td>2</td>
<td>radius</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>height</td>
<td>8</td>
</tr>
</tbody>
</table>

2. (5 pts) Based on the above worksheet snip, what is the result of the following formula formatted to 4 decimal places (i.e. show your answer to 4 decimal places)

\[ =\text{ROUND(C1,3)} \]

3. (20 pts) Given the worksheet snip below:

(a) The formula =RANK(E2,E$2:E$8,1) is typed into cell F2 and copied down to cell F8. Show the results in the worksheet snip.

(b) Determine the result of each formula given below:

\[ =\text{MIN(F2:F8)} \]

\[ =\text{COUNT(E2:E8)} \]

\[ =\text{LARGE(E2:E8,3)} \]

\[ =\text{POWER(E3,3)} \]