NAME: _____ **SECTION** _____

Atmospheric Sciences 101 Fall 2014
Homework #4 (Due Thursday, 30 October 2014)

1. Humidity
For parts A & B, state what happens to all the listed variables, assuming the air does not reach saturation and all other variables are held constant. [4]

A. A decrease in temperature. [0.5 point each]

Saturation vapor pressure: _____

Dew point temperature: _____

Absolute humidity: _____

Relative humidity: _____

B. An increase in the total amount of water vapor in the air parcel. [0.5 point each]

Saturation vapor pressure: _____

Dewpoint temperature: _____

Absolute humidity: _____

Relative humidity: _____

2. Fog

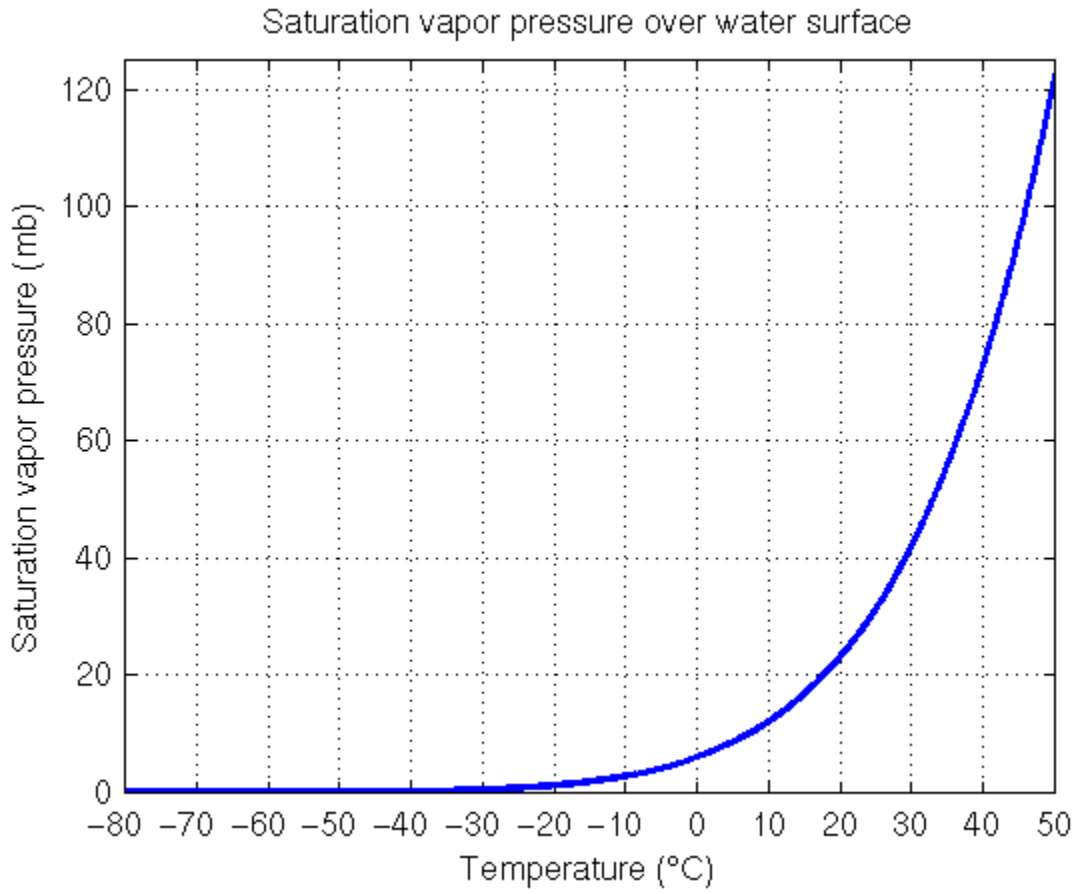
In each case below, name the type of fog (steam fog, radiation/valley fog, and advection fog) and *briefly describe the process* that resulted in the fog. [3]

A. On a *spring day* along the coast of southern Oregon there is steady westerly winds and fog that lasts through much of the day. [1]

B. During the *winter* in Seattle, several days of rain are followed by *clear skies, colder temperatures, no wind*, and a fog that occurs during the night and part of the morning. [1]

C. Early in the fall, after the first very cold night, wisps of fog are seen rising off the surface of Lake Washington. [1]

3. The following graph shows the saturation vapor pressure of water relative to a flat surface for typical tropospheric temperatures. [3]



Graph from http://www.atmos.washington.edu/2003Q3/101/webnotes.html

A. If the vapor pressure is 10 mb at 18°C, what is the relative humidity (to the nearest whole number %)? [1]

B. If you warmed this air up to 30°C without changing the amount of water vapor in it, what would be the relative humidity? [1]

C. What would happen if you cooled the air to 1°C? What would be the approximate relative humidity? [1]