PHYSICAL SCIENCE 105
ATMOSPHERIC MOISTURE ASSIGNMENT

1. Calculate the relative humidity for the following parcels of air

Absolute humidity = 6 grams

Capacity = 15 grams

Absolute humidity = 5 grams

Capacity = 25 grams

Absolute humidity = 9 grams

Capacity = 12 grams

Absolute humidity = 15 grams

Capacity = 20 grams

2. Use the following information to calculate the following:

Water vapor content: 14 grams
Water vapor capacity: 20 grams at 25° C
14 grams at 20° C
10 grams at 15° C

What is the relative humidity at 25° C?

For the given conditions, what would happen to the relative humidity value if the temperature increased from 25° C?

What is the dew point temperature for the conditions listed above?

What would happen if the temperature were cooled to 15 C?

3. As you drink an ice-cold beverage on a warm, humid day, the outside of the glass becomes wet. Briefly explain why this happens.

4. Refer to Table 17.1 in your textbook to answer the following question:

How much more water is contained in saturated air at a tropical location with a temperature of 40° C compared to a polar location with a temperature of -10° C?

5. The cumulonimbus cloud pictured in Figure 17.21H is roughly 12 kilometers tall, 8 kilometers wide, and 8 kilometers long. Assume that the droplets in each cubic meter of the cloud total 0.5 cubic centimeters. How much liquid does the cloud contain? How many gallons is this? (Note: 1 gallon = 3785 cubic centimeters)