

LAB QUIZ: DETERMINING THE DEW POINT

The data on the right were collected for an experiment performed outside, using the same dew point apparatus as we used in lab.

1. What is the average dew point temperature? Answer with one decimal place.
2. What is the saturation level of water vapor? Answer with three decimal places, as shown in the table.
3. What quantity of water vapor is actually in the air? Answer with three decimal places, as shown in the table.

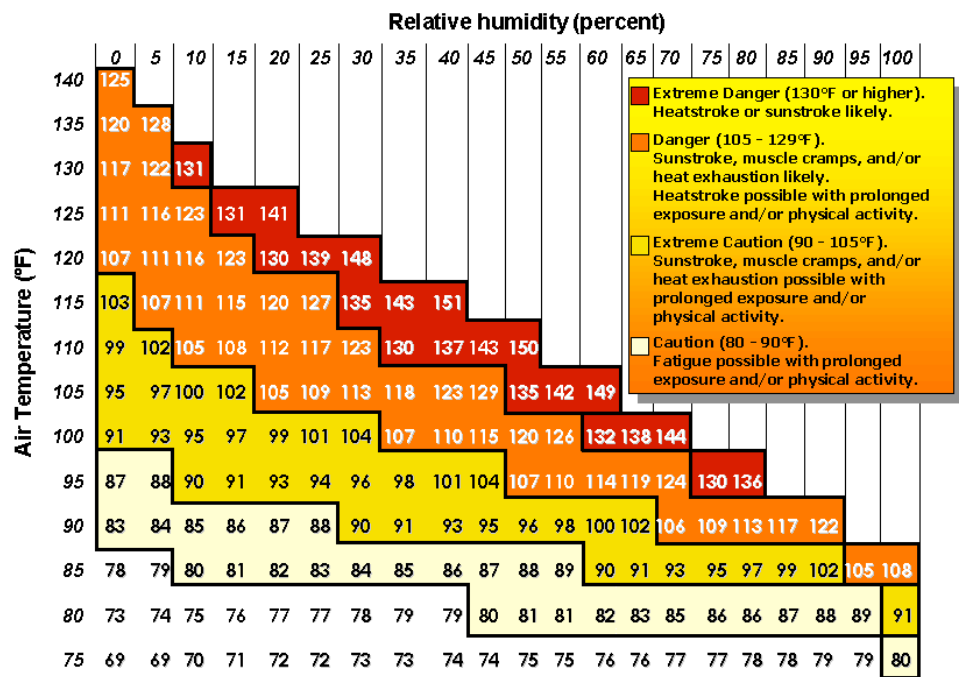
AIR TEMPERATURE (°C)	DEW POINT (°C)		
	TRIAL 1	TRIAL 2	TRIAL 3
27°	19°	18°	19°

4. Calculate the relative humidity of the outdoor air. Convert your decimal answer to a percent by multiplying by 100. (For example, 0.25 = 25%) Answer with one decimal place.
5. If the RH of the 27°C air is 41% (0.41), what is the dew point temperature?
 - A) 12°C
 - B) 13°C
 - C) 27°C
 - D) 41°C
 - E) 100°C
6. Convert the air temperature from 27°C to °F. Answer with one decimal place.
7. Using the heat index table below, what is the perceived temperature? How hot does it seem to be outdoors?
 - A) 75°F
 - B) 80°F
 - C) 82°F
 - D) 90°F

WATER VAPOR AS A FUNCTION OF TEMPERATURE					
T (°C)	H ₂ O (g/m ³)	T (°C)	H ₂ O (g/m ³)	T (°C)	H ₂ O (g/m ³)
10	9.330	20	17.118	30	30.020
11	9.395	21	18.143	31	32.040
12	10.574	22	19.222	32	33.449
13	11.249	23	20.355	33	35.274
14	11.961	24	21.546	34	37.167
15	12.712	25	22.796	35	39.137
16	13.505	26	24.109	36	41.279
17	14.339	27	27.487	37	43.475
18	15.218	28	26.933	38	45.751
19	16.144	29	28.450	39	48.138

8. On August 1, 2008 the high temperature in Conway reached 101°F. With a relative humidity of 40%, what was the heat index that day?
 - A) 101°F
 - B) 105°F
 - C) 110°F
 - D) 115°F
 - E) 120°F
9. On August 1, 2008 the high temperature in Scottsdale, Arizona was 110°, but the humidity was only 10%. What was the heat index?
 - A) 101°F
 - B) 105°F
 - C) 110°F
 - D) 115°F
 - E) 120°F

Heat Index
how hot the combination of temperature and humidity feels



10. True or false: On August 1, you would have been more comfortable outside doing yard work in Arizona than in Arkansas!