Chapter 13.1 - Pg. 453

Name or Group Members:

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Class Period _____

DEW POINT
Lab — Student Worksheet

PART I

1. Initial temperature of water _____ °F

2. Temperature of water when dew first forms (dew point temperature) _____ °F

3. Name three ways nature can cool a large mass of air.

PART II

4. Dry-bulb reading _____ °F Wet-bulb reading _____ °F

Refer to the following chart and answer the following questions to determine the dew point from your sling psychrometer readings. (NOTE: This table is for Fahrenheit only. An example of how to use the chart is shown on the following page.)

Hygrometrical Tables for Obtaining the Dew Point (Greenwich Factors*):

Dry-bulb	Factor	Dry-bulb	Factor	Dry-bulb	Factor
20	8.14	44	2.18	68	1.79
21	7.88	45	2.16	69	1.78
22	7.60	46	2.14	70	1.77
23	7.28	47	2.12	71	1.76
24	6.92	48	2.10	72	1.75
25	6.53	49	2.08	73	1.74
26	6.08	50	2.06	74	1.73
27	5.61	51	2.04	75	1.72
28	5.12	52	2.02	76	1.71
29	4.63	53	2.00	77	1.70
30	4.15	54	1.98	78	1.69
31	3.70	55	1.96	79	1.69
32	3.32	56	1.94	80	1.68
33	3.01	57	1.92	81	1.68
34	2.77	58	1.90	82	1.67
35	2.60	59	1.89	83	1.67
36	2.50	60	1.88	84	1.66
37	2.42	61	1.87	85	1.65
38	2.38	62	1.86	86	1.65
39	2.32	63	1.85	87	1.64
40	2.29	64	1.83	88	1.64
41	2.26	65	1.82	89	1.63
42	2.23	66	1.81	90	1.63
43	2.20	67	1.80		

**Adapted from Tables attributed to J. Glaisher, Fellow, Royal Soc.*

Example of how to use the Hygrometrical Tables to determine Dew Point

Dry-bulb reading = 60° F; Wet-bulb reading = 48° F

A. 60° - 48° = 12° Depression

B. Dry-bulb factor = 1.88 from Hygrometrical Tables

C. 12° X 1.88 = 22.56

D. 60° - 22.56 = 37.44° (Dew Point Temperature)

5. Subtract your wet-bulb reading from your dry-bulb reading. Show your work and record your answer below. This answer, or the difference between the wet- and dry-bulb readings is known as the wet-bulb depression.

6. Refer to the chart to determine the factor for your dry-bulb reading. Record this factor below.

7. Multiply the wet-bulb depression (from question #5) by the dry-bulb factor (from question #6). Show your work and record your answer below.

8. Subtract the answer to the previous question (#7) from the dry-bulb temperature. Show your work and record your answer below.

9. Your answer to question #8 is the dew point temperature. Compare it to the dew point temperature from the first part of the lab (that is, your answer to question #2). Was the dew point temperature obtained from the sling psychrometer the same as the dew point temperature obtained using the metal can?

10. Which procedure do you think is more accurate — directly measuring the dew point temperature of the water in the metal can or using a sling psychrometer to determine dew point? Explain the reasoning behind your answer.