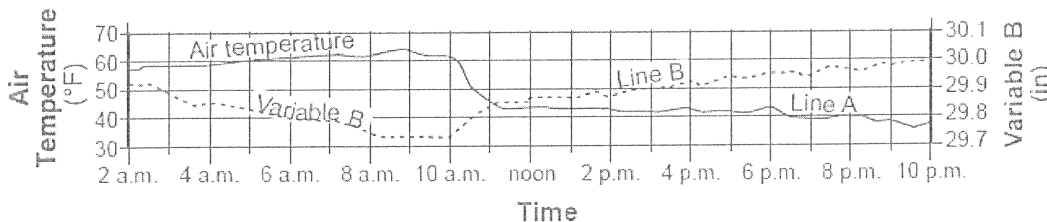


1. Data from two weather instruments have been recorded on the graph below. Line A on the graph represents air-temperature data. Line B was plotted using the scale for variable B.

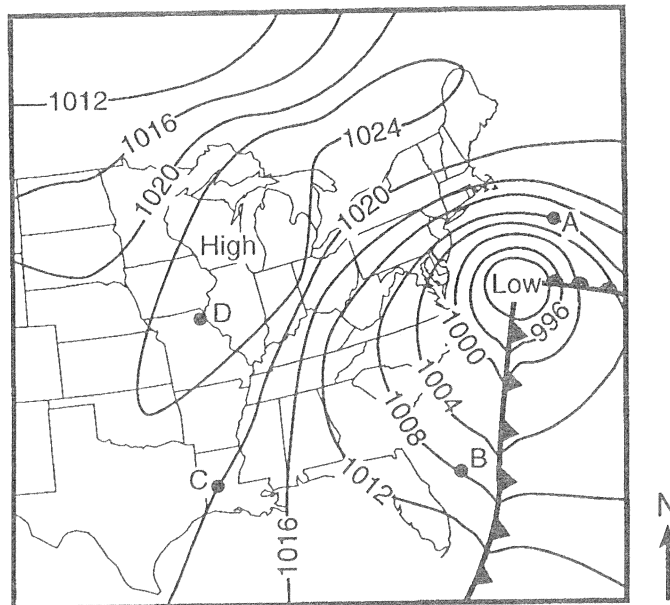


Line B on the graph represents data from which weather instrument?

- A) thermometer      B) barometer      C) psychrometer      D) anemometer

2. A temperature of 104°F is approximately equal to  
 A) 220°C    B) 214°C    C) 43°C    D) 40°C
3. Air pressure is usually highest when the air is  
 A) cool and humid      B) cool and dry  
 C) warm and humid      D) warm and dry
4. A barometric pressure of 1021.0 millibars is equal to how many inches of mercury?  
 A) 29.88    B) 30.15    C) 30.25    D) 30.50
5. Earth's surface winds generally blow from regions of higher  
 A) air temperature toward regions of lower air temperature  
 B) air pressure toward regions of lower air pressure  
 C) latitudes toward regions of lower latitudes  
 D) elevations toward regions of lower elevations
6. Wind is caused mainly by air-pressure differences that result from  
 A) uneven heating of Earth's atmosphere  
 B) absorption of ultraviolet radiation by Earth's landmasses  
 C) radiation of heat from Earth's landmasses to water bodies  
 D) rotation of Earth on its axis

Base your answers to questions 8 and 9 on the weather map below. Points A, B, C, and D are locations on Earth's surface.



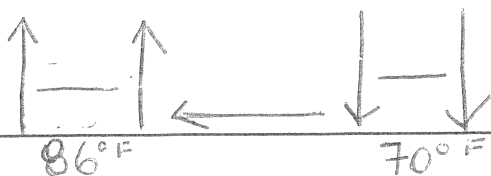
9. The isolines on the map represent values of air  
 A) density      B) humidity  
 C) pressure      D) temperature

10. The strongest winds are closest to location  
 A) A      B) B      C) C      D) D

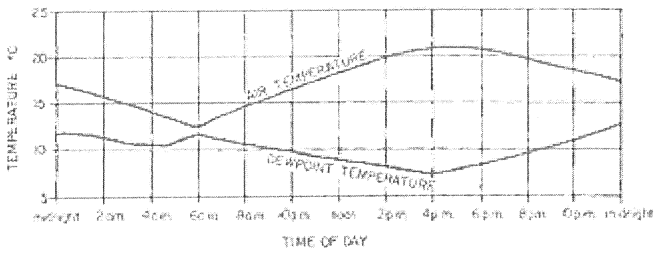
11. Which conditions are most likely to develop over a land area next to an ocean during a hot, sunny afternoon?

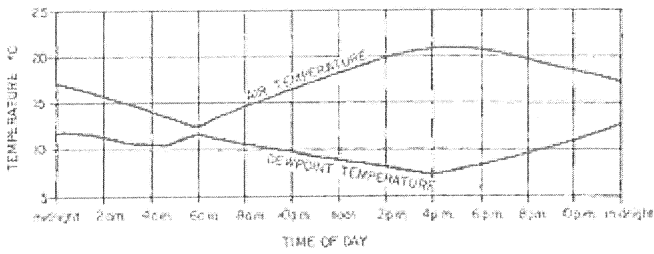
- A) The air temperature over the land is lower than the air temperature over the ocean, and a breeze blows from the land.  
 B) The air temperature over the land is higher than the air temperature over the ocean, and a breeze blows from the land.  
 C) The air pressure over the land is higher than the air pressure over the ocean, and a breeze blows from the ocean.  
 D) The air pressure over the land is lower than the air pressure over the ocean, and a breeze blows from the ocean.

8. Label each pressure system with a "H" or a "L" for high or low



- A psychrometer is used to determine which weather variables?
  - wind speed and wind direction
  - percentage of cloud cover and cloud height
  - air pressure and air temperature
  - relative humidity and dewpoint
- What is the relative humidity when the dry-bulb temperature is  $16^{\circ}\text{C}$  and the wet-bulb temperature is  $14^{\circ}\text{C}$ ?
  - 90%
  - 80%
  - 14%
  - 13%
- The dewpoint changes most directly as a result of changes in the atmosphere's
  - pressure
  - wind direction
  - convection currents
  - water vapor content
- As the dewpoint temperature of a sample of air decreases, the amount of moisture in that sample of air
  - decreases
  - increases
  - remains the same
- An observer measured the air temperature and the dewpoint and found the difference between them to be  $12^{\circ}\text{C}$ . One hour later, the difference between the air temperature and the dewpoint was found to be  $4^{\circ}\text{C}$ . Which statement best describes the changes that were occurring?
  - The relative humidity was decreasing and the chance of precipitation was decreasing.
  - The relative humidity was decreasing and the chance of precipitation was increasing.
  - The relative humidity was increasing and the chance of precipitation was decreasing.
  - The relative humidity was increasing and the chance of precipitation was increasing.
- What is the relative humidity of the air when the dry-bulb temperature is  $4^{\circ}\text{C}$  and the dewpoint is  $-4^{\circ}\text{C}$ ?
  - 42%
  - 46%
  - 51%
  - 56%
- What is the dewpoint when the dry bulb temperature is  $20^{\circ}\text{C}$  and the relative humidity is 17%?
  - $-5^{\circ}\text{C}$
  - $-2^{\circ}\text{C}$
  - $11^{\circ}\text{C}$
  - $15^{\circ}\text{C}$
- What is the relative humidity if the dry-bulb temperature is  $26^{\circ}\text{C}$  and the wet-bulb temperature is  $18^{\circ}\text{C}$ ?
  - 13%
  - 33%
  - 45%
  - 51%
- What is the dewpoint when the dry-bulb temperature is  $12^{\circ}\text{C}$  and the wet-bulb temperature is  $7^{\circ}\text{C}$ ?
  - $1^{\circ}\text{C}$
  - $-5^{\circ}\text{C}$
  - $28^{\circ}\text{C}$
  - $48^{\circ}\text{C}$
- A student used a sling psychrometer to measure the humidity of the air. If the relative humidity was 65% and the dry-bulb temperature was  $10^{\circ}\text{C}$ , what was the wet-bulb temperature?
  - $5^{\circ}\text{C}$
  - $7^{\circ}\text{C}$
  - $3^{\circ}\text{C}$
  - $10^{\circ}\text{C}$

- The graph below shows the changes in air temperature and dewpoint temperature over a 24-hour period at a particular location. At what time was the relative humidity *lowest*?
 



- midnight
  - 6 a.m.
  - 10 a.m.
  - 4 p.m.
- Most clouds form in the atmosphere when moist air
    - rises, expands, and cools to the dewpoint
    - rises, expands, and warms to the dewpoint
    - sinks, compresses, and cools to the dewpoint
    - sinks, compresses, and warms to the dewpoint
  - Which event will most likely occur in rising air?
    - clearing skies
    - cloud formation
    - decreasing relative humidity
    - increasing temperature
  - The base of a cumulus cloud was determined to be 500 meters above the Earth's surface. This is the altitude at which
    - cumulus clouds always form
    - no dust is present in the air
    - the air temperature drops below  $0^{\circ}\text{C}$
    - the air temperature equals the dewpoint temperature

15.

Temperatures Measured with a Psychrometer

Day	1	2	3	4
Dry-bulb temperature ( $^{\circ}\text{C}$ )	0	5	10	15
Wet-bulb temperature ( $^{\circ}\text{C}$ )	-5	0	5	10

According to the data shown in the table, which day had the highest relative humidity?

- 1
- 2
- 3
- 4