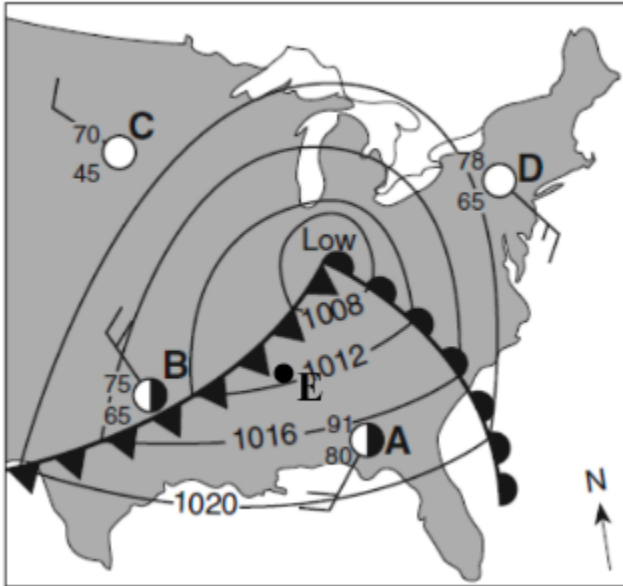


Meteorology Study Guide

Question and Diagram:	Answer and explanation:
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	Temp	Dew Pt	Cloud Cover	Wind Dir	Wind Sp.
A	91	80	50	SW	20
B	75	65	50	NW	20
C	70	45	0	NW	10
D	78	65	0	SE	15

1. What is the Temperature, Dew Pt, Cloud cover, Wind direction, & Wind speed at A, B, C, & D?
2. What type of front extends to the southwest of the low pressure system?
3. What type of front extends to the southeast of the low pressure system?
4. What was the likely source region for the air mass over location A?
5. If the low pressure system follows a typical path, which location will it likely move toward?
6. Make a forecast for point E.

- Cold
- Warm
- Gulf of Mexico
- D

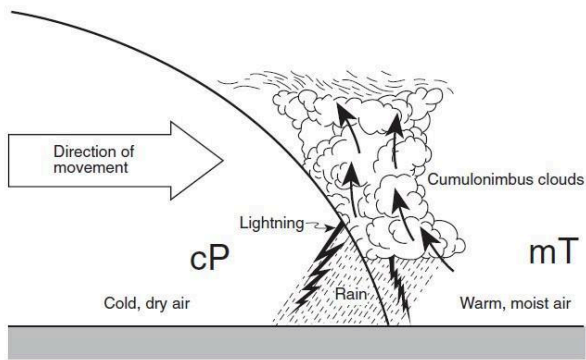
7. State a possible atmospheric pressure for location A.
8. Describe the general air circulation around a Low Pressure system.

- It will experience heavy thunderstorms in a brief time, and then it will get cooler after they pass.
- 1018 mb (anything between 1020 and 1016mb)
- Counterclockwise and toward the center (converging)

9. What is the barometric pressure reading for this station model?

1013.5mb

Question and Diagram:	Answer and explanation:
	<p>B is on the windward side (air rising and cooling by expansion) and A is on the leeward (air sinking and warming by compression)</p>
<p>14. Why would the average temperatures for B be lower than A?</p>	
<p>15. Why would E have cooler average temperatures than A, B, C, D, F & G?</p>	<p>It's at a much higher latitude</p>
<p>16. Why would summers at F be cooler than summers at G? And, why would winters at F be warmer than the winters at G?</p>	<p>F is a coastal city (less extreme temperature range)</p>
	<p>Windward: Cool, moist Leeward: Hot, dry</p>
<p>17. Compare the climatic conditions on the windward and leeward sides of a mountain.</p>	
<p>18. Explain why the clouds form on the windward side.</p>	<p>Air is rising and cooling by expansion (cools to dew point, condensation occurs)</p>
<p>12 noon Thursday 8 p.m. Thursday</p>	<p>100%</p>
<p>19. State the relative humidity at this location at 8 p.m. Thursday.</p>	



Warm air rises and cold air sinks

21. Why do the clouds form on the mT side instead of the cP side?

22. What process creates clouds?

Rising air cools by expansion, causing water vapor to condense

23. What is a possible source region for the cP and mT air masses?

cP: Canada

mT: Gulf of Mexico

24. What type of front is this?

Cold Front

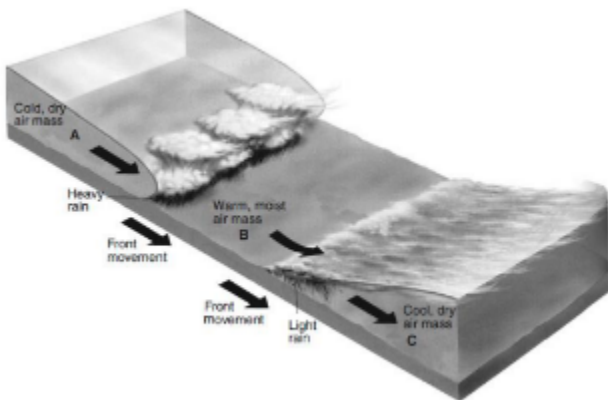
Air temperature (dry-bulb temperature)	0°C
Relative humidity	81%
Present weather	snow

-1°C

25. What is the wet-bulb temperature?

26. What is the dew point?

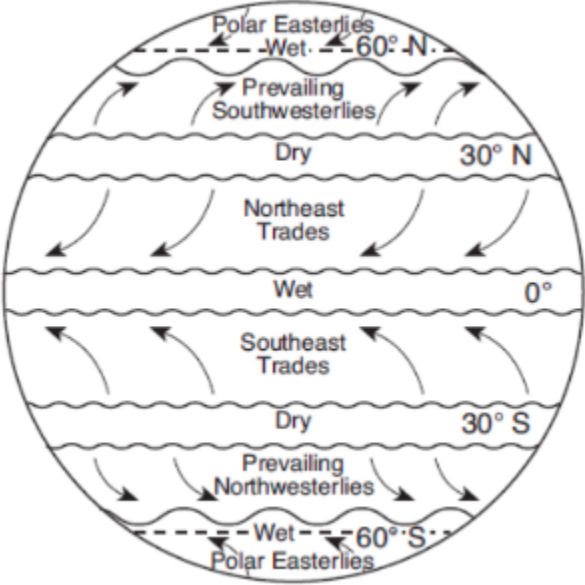
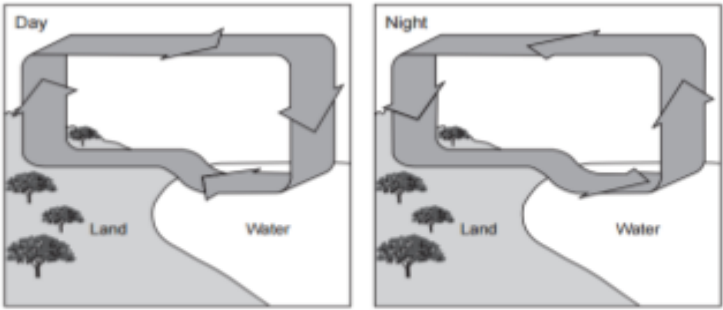
-3°C



Upper left: Cold Front

Lower right: Warm Front

27. What kind of front is in the upper left? Lower right?

	<p>Southwest</p>
<p>28. In which direction are the prevailing winds for NY?</p>	
<p>29. What about the circulation of air make the equator “wet” moisture belt?</p>	<p>Air rises (warm, low pressure = moisture/rain)</p>
<p>30. What about the circulation of air makes the poles “dry”?</p>	<p>Air sinks (cold, high pressure = dry)</p>
<p>31. What is the relationship between temperature and altitude in the troposphere</p>	<p>As air rises in the troposphere the temperature will decrease.</p>
<p>32. If air has a dry-bulb temperature of 2°C and a wet-bulb temperature of -2°C, what is the relative humidity?</p>	<p>36 %</p>
 <p style="text-align: center;">A B</p>	<p>A - Sea breeze /Night time B - Land Breeze/ Day time</p>
<p>33. Which diagram shows a land breeze? Which diagram shows a sea breeze?</p>	
<p>34. Winds are caused by differences in what?</p>	<p>Air Pressure</p>

35. How do you determine where the strongest winds are on a weather map?

Where the isobars are closest together

36. Acceptable responses include, but are not limited to:

- The air on the western slopes of the mountains is rising.
- The valleys are located on the eastern side of mountain ranges where air is sinking.
- Air is warmed by compression as it descends the mountain slopes, so relative humidity decreases.

37. precipitation total of 134 in \pm 4 in.

38. Acceptable responses include, but are not limited to:

- The Sierra Nevada Mountain Range is higher in elevation.
- Higher elevations have lower temperatures.
- Expansional cooling increases with higher mountains.

39. Allow 1 credit if both air masses are correct as shown below. Allow credit for either upper- or lowercase letters.

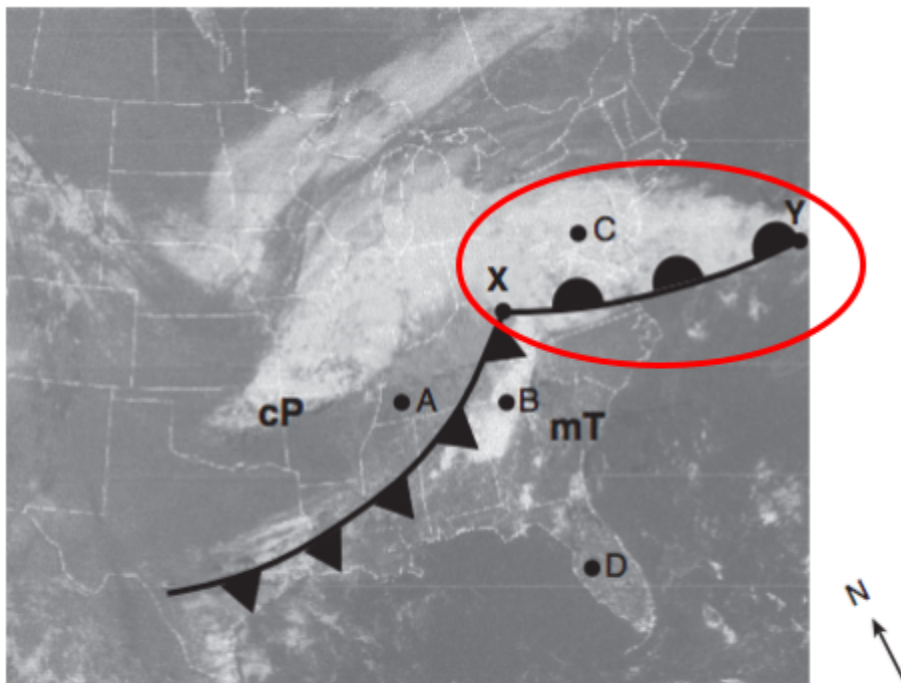
(1) cP

(2) mT

Note: Do not allow credit if the letters are reversed, such as, Tm.

40. Binghamton.

41. warm-front symbol drawn on the correct side of line XY circle in red.



42. [1] Acceptable responses include, but are not limited to:

- condensation
- expanding air
- cooling to the dewpoint
- rising air

43. Acceptable responses include, but are not limited to:

- Location A is influenced by a cold, dry air mass.
- Location A has clear skies.
- Location B is in a warm, moist air mass.
- Location B has cloud cover.

44. Acceptable responses include, but are not limited to:

- Location C is cooler because it is farther north.
- C is in a continental polar air mass, which is cold, dry air.
- Location C has clouds that block some of the sunlight. cP

45. Acceptable responses include, but are not limited to:

- east
- northeast

46. Acceptable responses include, but are not limited to:

- Birdsville is located inland near the center of the continent.
- Bundaberg is located near a large body of water (the ocean) that moderates climate temperatures.

47. Acceptable responses include, but are not limited to:

- Bundaberg is located near the ocean.
- Birdsville is located inland.
- The warm ocean current affects the climate of Bundaberg.
- Bundaberg is located on the windward side of the mountain.

48.

