

- 3-1 Why do meteorologists sometimes call a cold front - “a back door cold front” in the northeastern United States?
- 3-2 After a “back door cold front” passes a location in New York State, what is the most likely wind direction?
- A. Northeast
B. Southeast
C. Southwest
D. Northwest

- 3-3 On February 28, 2007 at 7 AM the air temperature in Ontario, Canada was -10°C and at the same time, the air temperature in the upstate New York was -10°F .

The air temperature in Ontario, Canada was _____ compared to the air temperature in upstate New York. Hint: $C = \frac{5}{9}(F - 32)$ and $F = \frac{9}{5}C + 32$

- A. the same
B. colder
C. warmer
D. dependent on the wind speed
E. can not be determined from the information given
- 3-4 A surface weather map does not directly show the:
- A. wind speeds and directions
B. location of the fronts
C. relative humidities and location of the jet stream
D. types of precipitation
E. dry bulb temperatures

Indicate whether the following statements are True or False (Write the word “true” or “false”).

- 3-5 Somewhere in New York State you can experience a lake breeze during the summer.
- 3-6 Somewhere in New York State you can experience a sea breeze during the spring.
- 3-7 Somewhere in New York State you can experience a Chinook at sometime of the year.

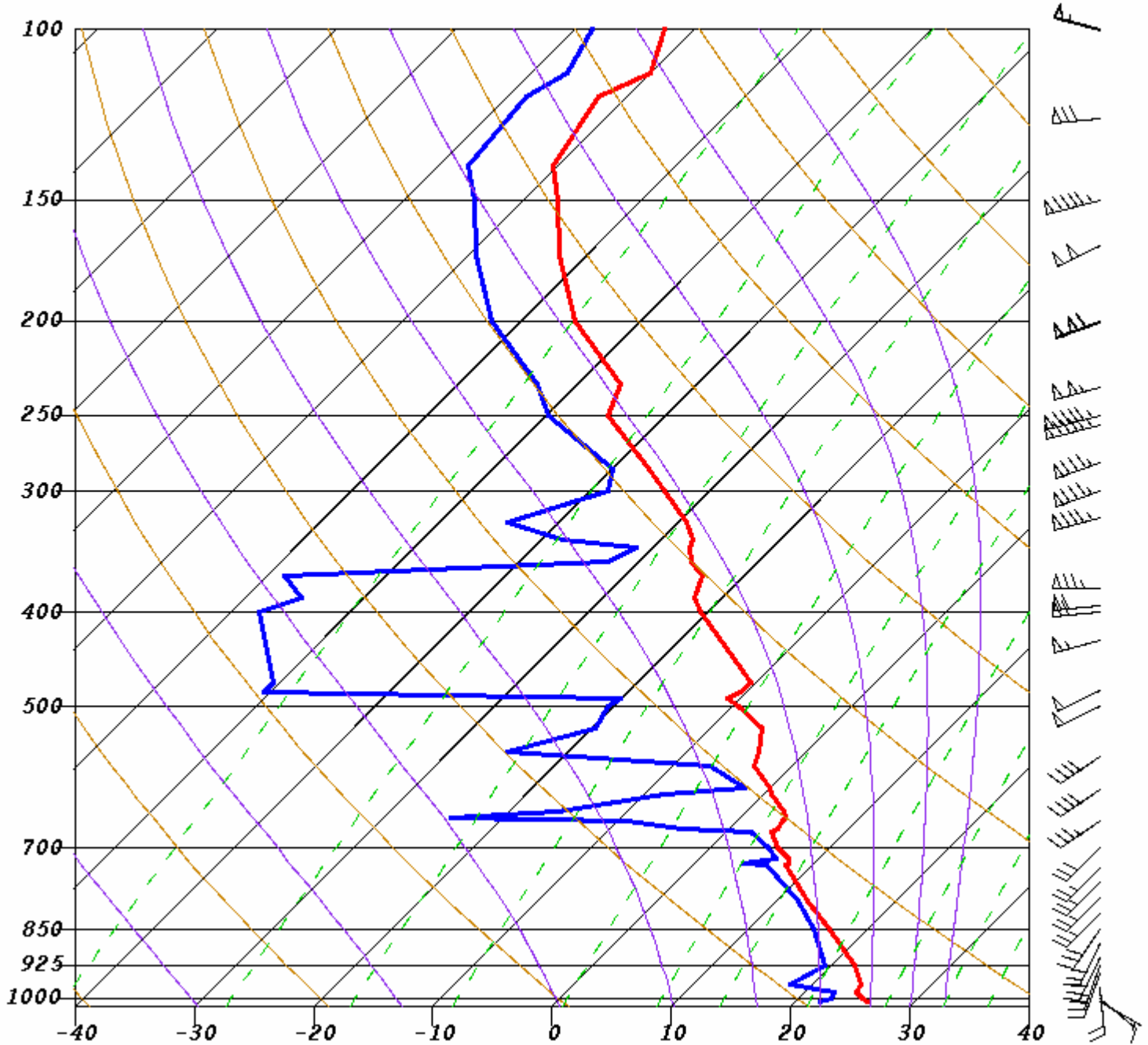
- 3-8 Local wind patterns, such as mountain breezes and valley breezes, are formed because:
- A. There are two sides to every mountain and valley.
 - B. A mountain is higher and a valley is lower than the surrounding terrain.
 - C. The density of the air at the top of the mountain or valley is different than the density of the air at the bottom of the mountain or valley.
 - D. Air naturally always flows down a mountain and always flows down a valley.
 - E. Air naturally always flows up a mountain and always flows up a valley.

Answer the Questions 3-9 to 3-11 based on Figure 3A on the next page

- 3-9 The instrumentation that measured the data graphed in Figure 3A was:
- A. a barometer
 - B. a sling psychrometer
 - C. an anemometer
 - D. a radiosonde
 - E. a beaufort scale instrument
 - F. not measured by a single instrument
- 3-10 In Figure 3A, which layer is least likely to contain clouds?
- A. 850 mb to 700 mb
 - B. 700 mb to 500 mb
 - C. 490 mb to 350 mb
 - D. 300 mb to 250 mb
- 3-11 The wind speed from the surface to 200 mb generally:
- A. Does not change
 - B. Increases with increasing height
 - C. Increases with decreasing height
 - D. Decreases with increasing height

Figure 3A

070411/0000 72201 EYW SHOW: -4 LIFT: -5 SWET: 425 VTOT: 26 TOTL: 26
 CAPE: 1245 EQLV: 197 SELV: 6 CINS: -49 LFCV: -49
 LCLT: 294 LCLP: 952



The Y axis is in atmospheric pressure (mb) and
 the X axis is temperature (°C)

Answer the Questions 3-12 to 3-13 based on Figure 3B on the next page

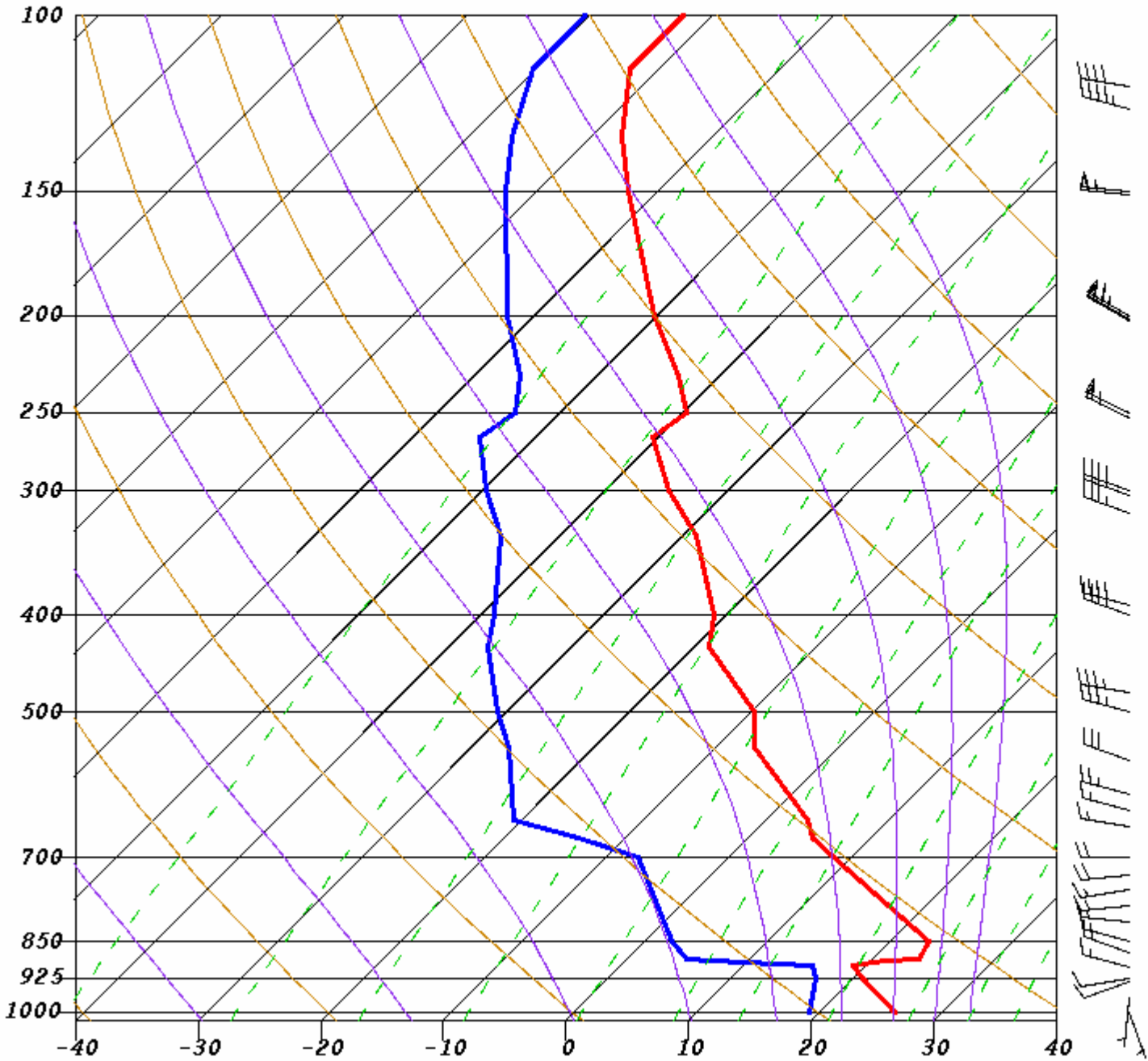
3-12 Based on Figure 3B, is there a temperature inversion? If so, indicate where (between _____ and _____ mb).

3-13 The stability of the atmosphere indicated in Figure 3B between 700 mb and 500 mb can be described as _____ .

- A. Stable
- B. Isothermal
- C. Unstable

Figure 3B

070411/0000 72250 BRO SHOW: 3 LIFT: -3 SWET: 93 VTOT: 33 TOTL: 33
 CAPE: 618 EQLV: 280 SELV: 7 CINS: -365 LFCV: 903
 LCLT: 291 LCLP: 903



The Y axis is in atmospheric pressure (mb) and
 the X axis is temperature (°C)