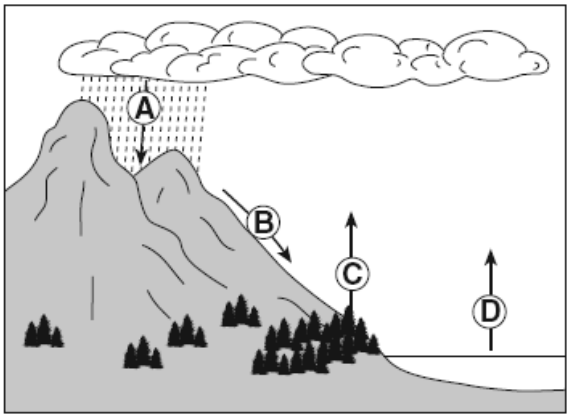
Meteorology Short Answer

The arrows in the diagram below represent the movement of water in the water cycle.



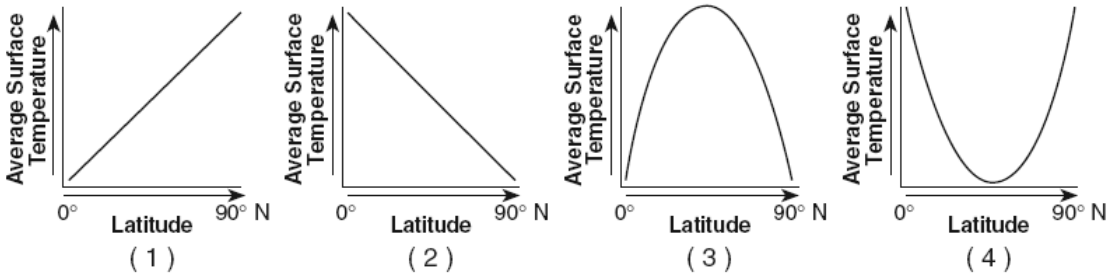
1 Which arrow represents the process of transpiration?

(1) *A*
(2) *B*
(3) *C*
(4) *D*

2 On a cold winter day, the air temperature is 2°C and the wet-bulb temperature is –1°C. What is the relative humidity at this location?

(1) 6%
(2) 37%
(3) 51%
(4) 83%

3. Which graph best represents the general relationship between latitude and average surface temperature?



4 Most insolation striking a smooth, light-colored, solid surface is

(1) refracted
(2) transmitted
(3) reflected
(4) absorbed

5 Which process requires water to gain heat energy from the environment?

(1) evaporation
(2) condensation
(3) infiltration
(4) precipitation

?

6 The air above a burning candle is heated and rises. Which table correctly identifies the type of heat transfer within the rising air and the change in air density above the burning candle?

Type of Heat Transfer	Change in Air Density
conduction	density increases

(1)

Type of Heat Transfer	Change in Air Density
convection	density increases

(3)

Type of Heat Transfer	Change in Air Density
conduction	density decreases

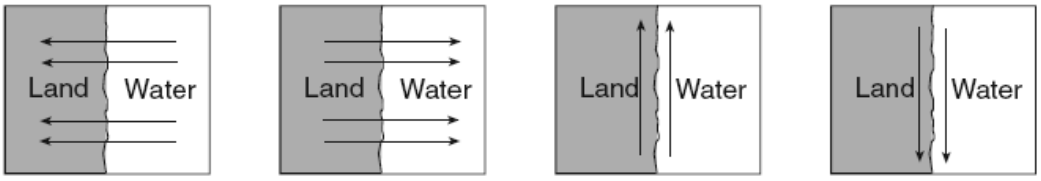
(2)

Type of Heat Transfer	Change in Air Density
convection	density decreases

(4)

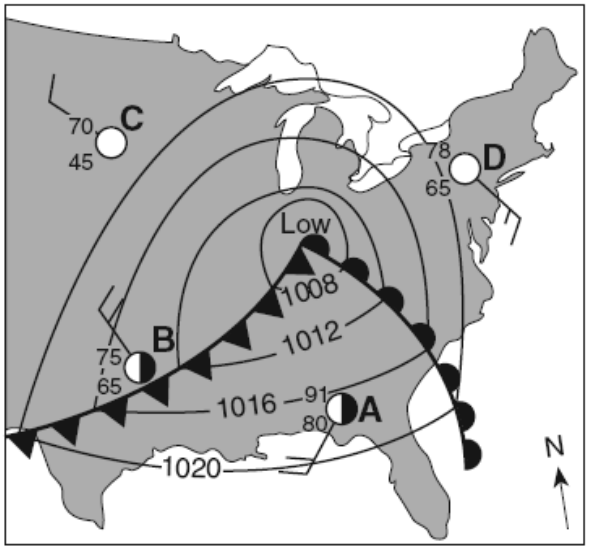
?

7 Adjacent water and landmasses are heated by the morning Sun on a clear, calm day. After a few hours, a surface wind develops. Which map best represents this wind's direction?

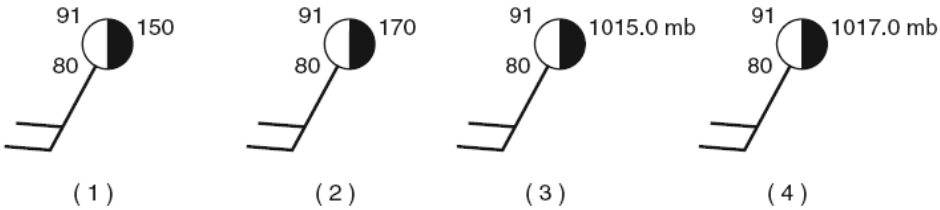


(1) (2) (3) (4)

Base your answers to questions 8 through 10 on the weather map below, which shows a low-pressure system over the eastern United States. Letters *A* through *D* represent weather stations.



8 Which station model correctly represents the barometric pressure at station *A*?



(1) (2) (3) (4)

9 Which weather instrument was used to measure wind speed at station *D*?

(1) barometer
(2) thermometer
(3) psychrometer
(4) anemometer

10 Surface winds within this low-pressure system most likely are flowing

(1) toward the center in a clockwise pattern
(2) toward the center in a counterclockwise pattern
(3) away from the center in a clockwise pattern
(4) away from the center in a counterclockwise pattern

11 The altitude of the ozone layer near the South Pole is 20 kilometers above sea level. Which temperature zone of the atmosphere contains this ozone layer?

(1) troposphere
(2) stratosphere
(3) mesosphere
(4) thermosphere

12 Air masses are identified on the basis of temperature and

(1) type of precipitation
(2) wind velocity
(3) moisture content
(4) atmospheric transparency

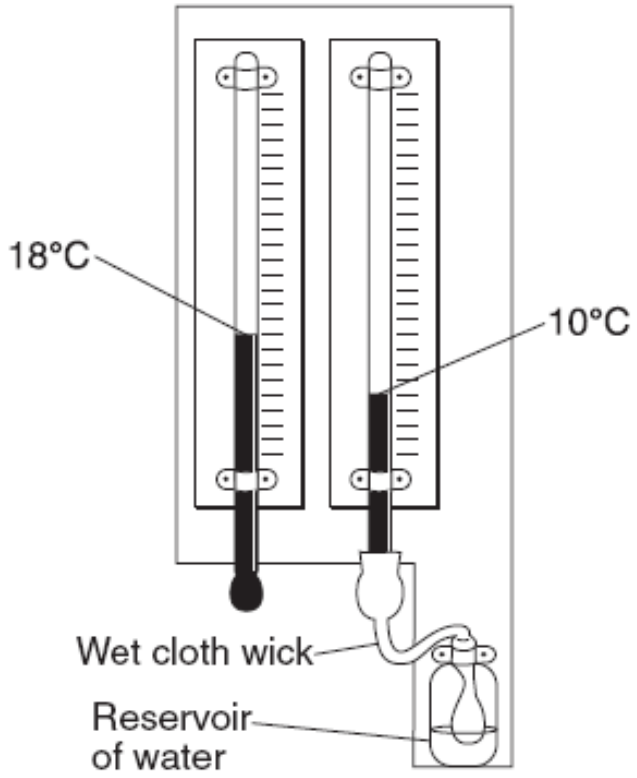
13 A low-pressure system in the Northern Hemisphere has a surface air-circulation pattern that is

(1) clockwise and away from the center
(2) clockwise and toward the center
(3) counterclockwise and away from the center
(4) counterclockwise and toward the center

14 During some winters in the Finger Lakes region of New York State, the lake water remains unfrozen even though the land around the lakes is frozen and covered with snow. The primary cause of this difference is that water

(1) gains heat during evaporation
(2) is at a lower elevation
(3) has a higher specific heat
(4) reflects more radiation

The weather instrument shown below can be used to determine dew point.



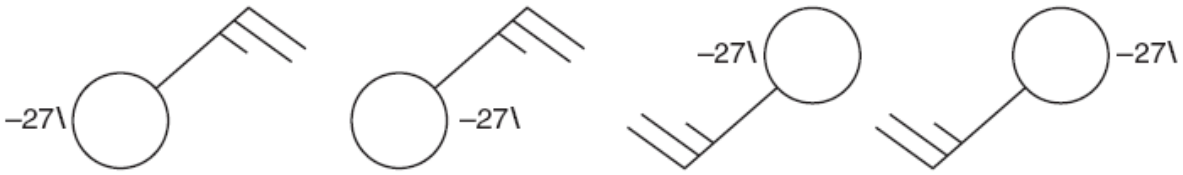
?

15 Based on the values shown, the dew point is

(1) –5°C
(2) 2°C
(3) 8°C
(4) 33°C

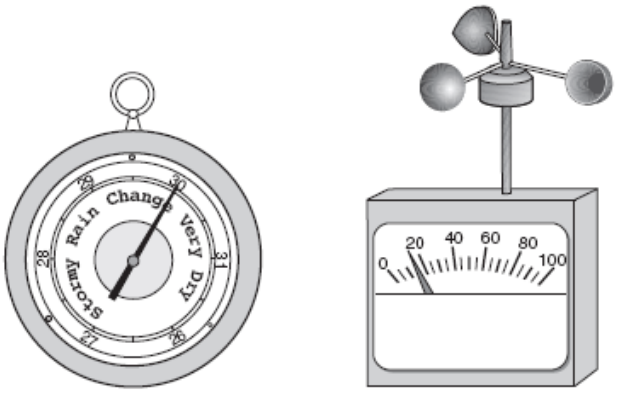
?

16 Which station model correctly represents the weather conditions in an area that is experiencing winds from the northeast at 25 knots and has had a steady drop in barometric pressure of 2.7 millibars during the last three hours?



(1) (2) (3) (4)

The diagram below shows weather instruments *A* and *B*.



A B

?

17 Which table correctly indicates the name of the weather instrument and the weather variable that it measures?

Instrument		Weather Variable Measured
Letter	Name	
A	thermometer	humidity
B	wind vane	wind direction

(1)

Instrument		Weather Variable Measured
Letter	Name	
A	barometer	wind speed
B	anemometer	air pressure

(3)

Instrument		Weather Variable Measured
Letter	Name	
A	thermometer	wind direction
B	wind vane	humidity

(2)

Instrument		Weather Variable Measured
Letter	Name	
A	barometer	air pressure
B	anemometer	wind speed

(4)

?

18Equal areas of which surface would most likely absorb the most insolation?

(1) smooth, white surface
(2) rough, white surface
(3) smooth, black surface
(4) rough, black surface

?

19 The average temperature at Earth's equator is higher than the average temperature at Earth's South Pole because the South Pole

(1) receives less intense insolation
(2) receives more infrared radiation
(3) has less land area
(4) has more cloud cover

20 Under which atmospheric conditions will water most likely evaporate at the fastest rate?

(1) hot, humid, and calm
(2) hot, dry, and windy
(3) cold, humid, and windy
(4) cold, dry, and calm

?

21 Which temperature zone of Earth's atmosphere contains the most water vapor?

(1) mesosphere (3) thermosphere
(2) stratosphere (4) troposphere

23 Which weather condition most directly determines wind speeds at Earth's surface?

(1) visibility changes
(2) amount of cloud cover
(3) air-pressure gradient
(4) dewpoint differences

22 Which statement best explains why an increase in the relative humidity of a parcel of air generally increases the chance of precipitation?

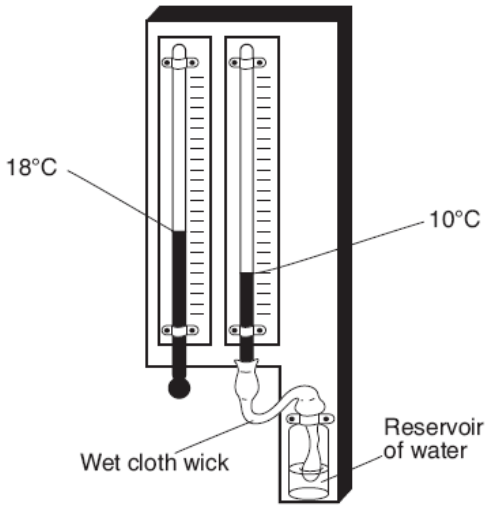
(1) The dewpoint is farther from the condensation point, causing rain.

(2) The air temperature is closer to the dewpoint, making cloud formation more likely.

(3) The amount of moisture in the air is greater, making the air heavier.

(1) The specific heat of the moist air is greater than the drier air, releasing energy.

The weather instrument below can be used to determine relative humidity.



24 Based on the temperatures shown, the relative humidity is

(1) 19% (3) 33%
(2) 2% (4) 40%

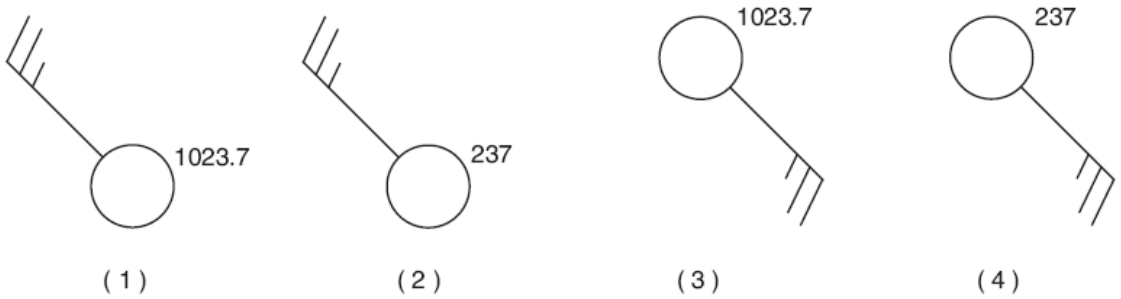
The diagram below shows four surfaces of equal area that absorb insolation.

25 Which letter represents the surface that most likely absorbs the greatest amount of insolation?

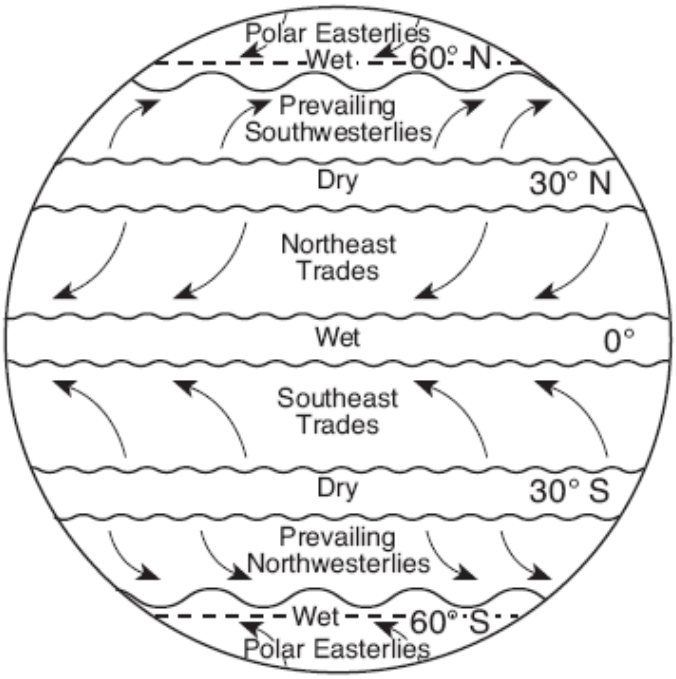
(1) *A* (3) *C*
(2) *B* (4) *D*

?

26 Which station model shows the correct form for indicating a northwest wind at 25 knots and an air pressure of 1023.7 mb?



Base your answers to questions 27 through 29 on the map below, which shows Earth's planetary wind belts.



?

27 The curving of these planetary winds is the result of

(1) Earth's rotation on its axis
(2) the unequal heating of Earth's atmosphere
(3) the unequal heating of Earth's surface
(4) Earth's gravitational pull on the Moon

?

28 Which wind belt has the greatest effect on the climate of New York State?

(1) prevailing northwesterlies
(2) prevailing southwesterlies
(3) northeast trades
(4) southeast trades

29 Which climatic conditions exist where the trade winds converge?

(1) cool and wet
(2) cool and dry
(3) warm and wet
(4) warm and dry

30 In the Northern Hemisphere, planetary winds blowing from north to south are deflected, or curved, toward the west. This deflection is caused by the

(1) unequal heating of land and water surfaces
(2) movement of low-pressure weather systems
(3) orbiting of Earth around the Sun
(4) spinning of Earth on its axis

33 If the base of a cloud is located at an altitude of 2 kilometers and the top of the cloud is located at an altitude of 8 kilometers, this cloud is located in the

(1) troposphere, only
(2) stratosphere, only
(3) troposphere and stratosphere
(4) stratosphere and mesosphere

The table below shows air-pressure readings taken at two cities, in the same region of the United States, at noon on four different days.

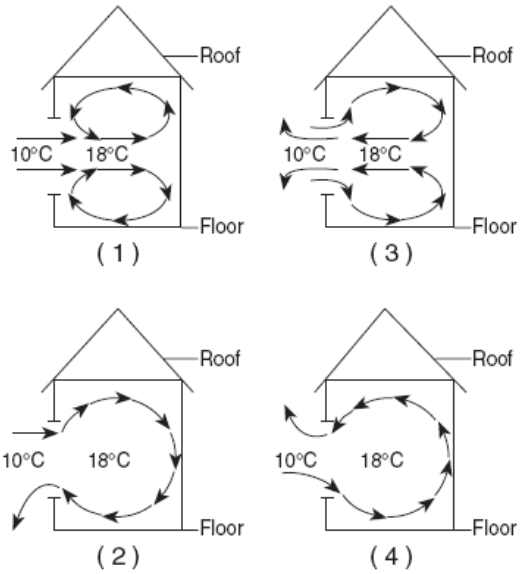
Air-Pressure Readings

Day	City A Air Pressure (mb)	City B Air Pressure (mb)
1	1004.0	1004.0
2	1000.1	1002.9
3	1000.2	1011.1
4	1010.4	1012.3

31 The wind speed in the region between cities *A* and *B* was probably the greatest at noon on day

(1) 1
(2) 2
(3) 3
(4) 4

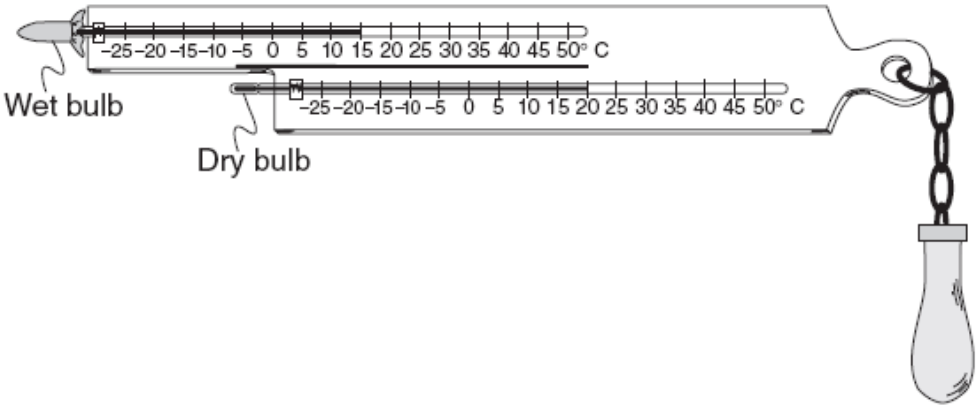
34 On a day with no wind, the air temperature outside a house is 10°C. The air temperature inside the house is 18°C. Which diagram best represents the air circulation pattern that is most likely to occur when a window of the house is first opened?



32 Snowfall is rare at the South Pole because the air over the South Pole is usually

(1) rising and moist
(2) rising and dry
(3) sinking and moist
(4) sinking and dry

The diagram below shows a sling psychrometer.



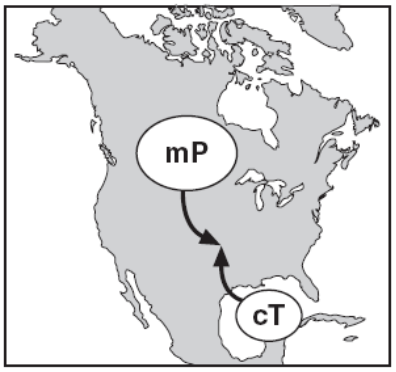
?

35 Based on the dry-bulb temperature and the wet-bulb temperature, what is the relative humidity?

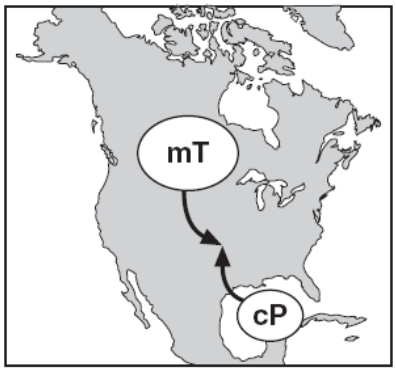
(1) 66%
(2) 58%
(3) 51%
(4) 12%

?

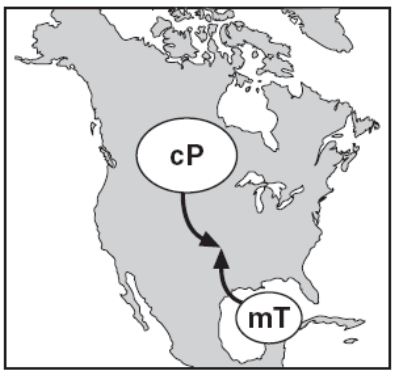
36 Which map shows the two correctly labeled air masses that frequently converge in the central plains to cause tornadoes ?



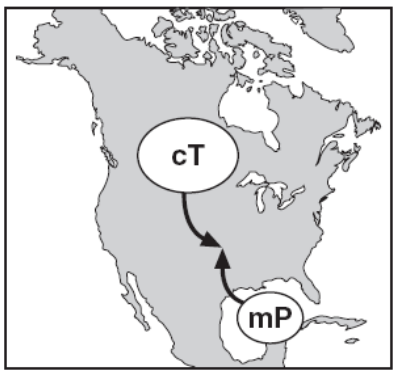
(1)



(3)

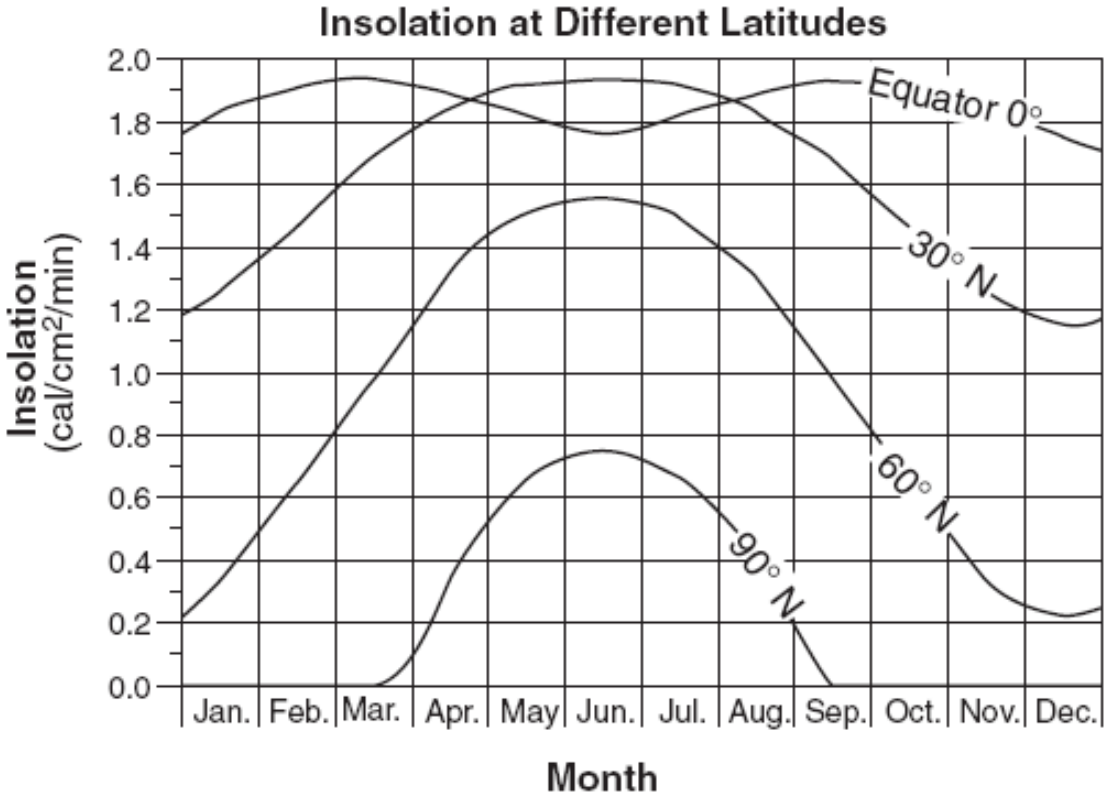


(2)



(4)

Base your answers to questions 37 through 39 on the graph below, which shows the amount of insolation during one year at four different latitudes on Earth's surface.



?

37 This graph shows that insolation varies with

(1) latitude and time of day
(2) latitude and time of year
(3) longitude and time of day
(4) longitude and time of year

?

38 Why is less insolation received at the equator in June than in March or September?

(1) The daylight period is longest at the equator in June.
(2) Winds blow insolation away from the equator in June.
(3) The Sun's vertical rays are north of the equator in June.
(4) Thick clouds block the Sun's vertical rays at the equator in June.

?

39 Why is insolation 0 cal/cm2/min from October through February at 90° N?

(1) Snowfields reflect sunlight during that time.
(2) Dust in the atmosphere blocks sunlight during that time.
(3) The Sun is continually below the horizon during that time.
(4) Intense cold prevents insolation from being absorbed during that time.

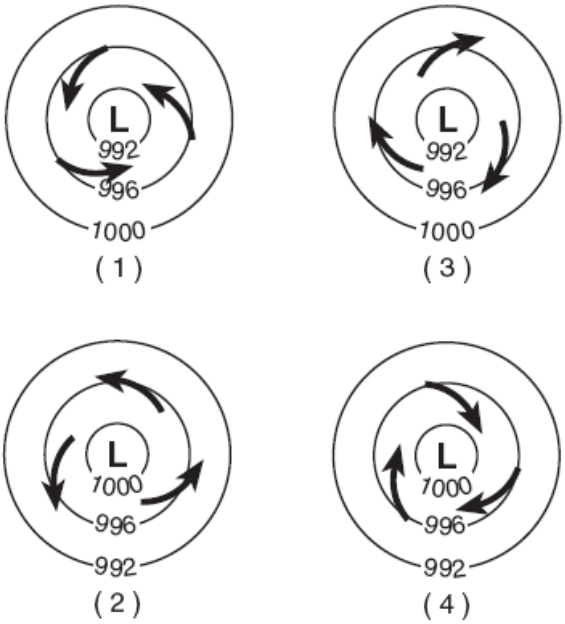
?

40 The coldest climates on Earth are located at or near the poles primarily because Earth's polar regions

(1) receive mostly low-angle insolation
(2) receive less total yearly hours of daylight
(3) absorb the greatest amount of insolation
(4) are usually farthest from the Sun

?

41Which map view best represents the pattern of isobar values, in millibars, and the pattern of wind flow, shown by arrows, at Earth's surface surrounding a Northern Hemisphere low-pressure center?



?

42 Compared to a maritime tropical air mass, a maritime polar air mass has a

(1) higher temperature and more water vapor
(2) higher temperature and less water vapor
(3) lower temperature and more water vapor
(4) lower temperature and less water vapor

?

43 During nighttime cooling, most of the energy radiated by Earth's oceans into space is

(1) ultraviolet rays (3) visible light rays
(2) gamma rays (4) infrared rays

?

44 An observer measured the air temperature and the dewpoint and found the difference between them to be 12°C. One hour later, the difference between the air temperature and the dewpoint was found to be 4°C. Which statement best describes the changes that were occurring?

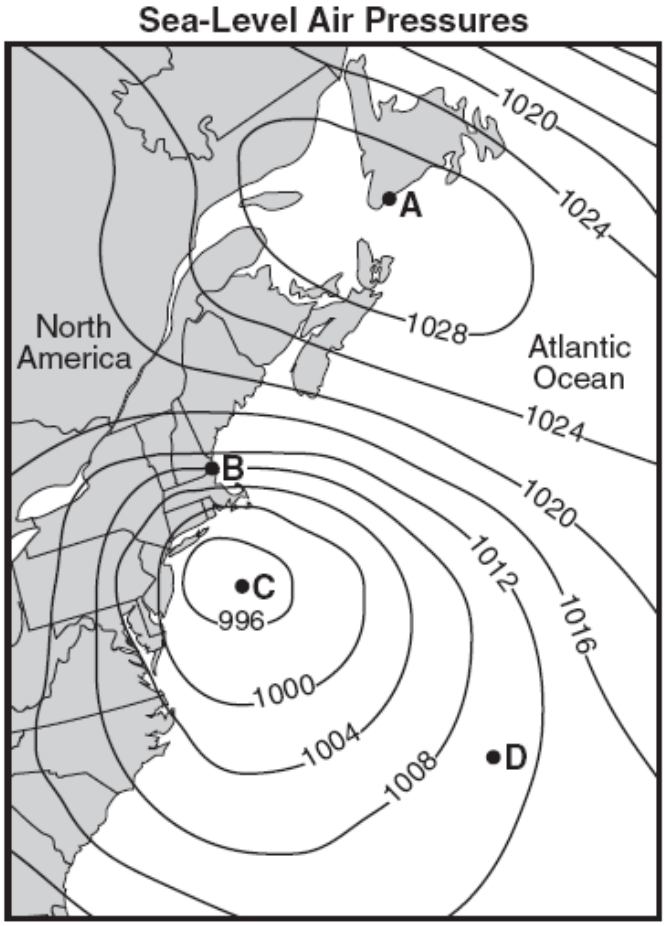
(1) The relative humidity was decreasing and the chance of precipitation was decreasing.

(2) The relative humidity was decreasing and the chance of precipitation was increasing.

(3) The relative humidity was increasing and the chance of precipitation was decreasing.

(4) The relative humidity was increasing and the chance of precipitation was increasing.

Base your answers to questions 45 through 47 on the map below, which shows sea-level air pressure, in millibars, for a portion of the eastern coast of North America. Points *A, B, C,* and *D* are sea-level locations on Earth's surface.



?

47 Which weather instrument was used to measure the air pressures?

(1) thermometer
(2) wind vane
(3) sling psychrometer
(4) barometer

?

46 Which location most likely recorded the highest wind speed?

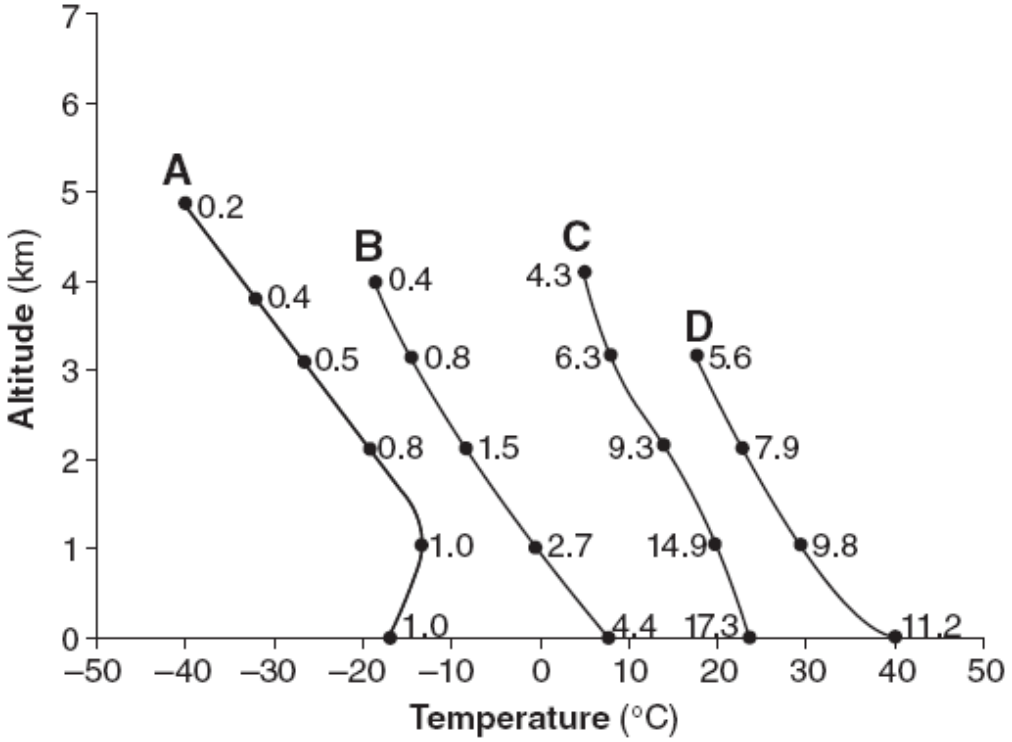
(1) *A*
(2) *B*
(3) *C*
(4) *D*

?

47 The air pressure recorded at point *D* was most likely

(1) 1014 mb
(2) 1012 mb
(3) 1010 mb
(4) 1006 mb

The graph below shows changes in the atmosphere occurring above typical air-mass source regions *A, B, C,* and *D*. Changes in air temperature and altitude are shown as the graphed lines.



Changes in water-vapor content, in grams of vapor per kilogram of air, are shown as numbers on each graphed line.

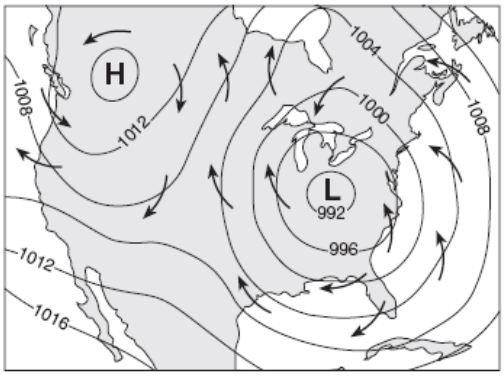
?

48 Which list best identifies each air-mass source region?

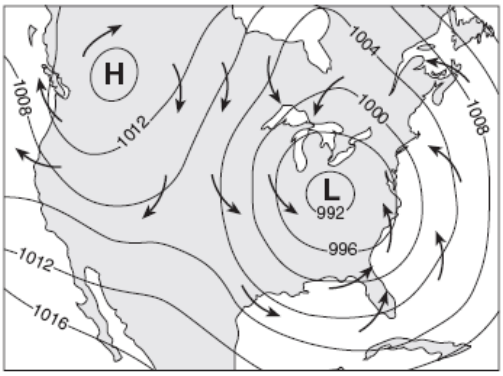
(1) *A* — cT, *B* — cP, *C* — mP, *D* — mT
(2) *A* — cP, *B* — mP, *C* — mT, *D* — cT
(3) *A* — mP, *B* — mT, *C* — cT, *D* — cP
(4) *A* — mT, *B* — cT, *C* — cP, *D* — mP

?

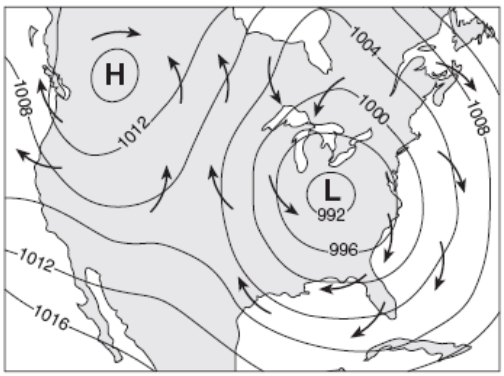
49 Which map best represents the direction of surface winds associated with the high- and low-pressure systems?



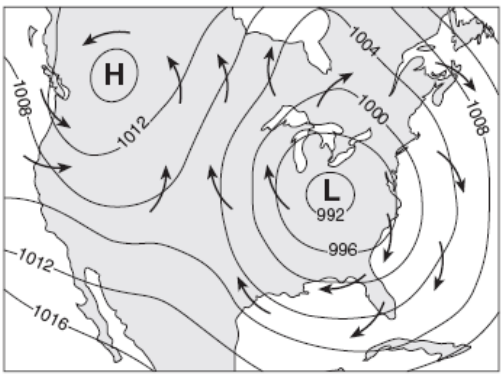
(1)



(3)



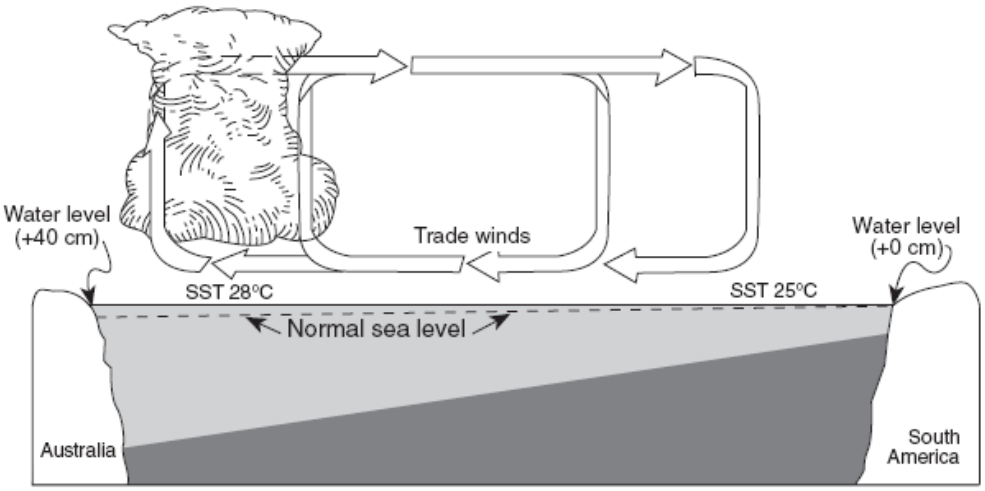
(2)



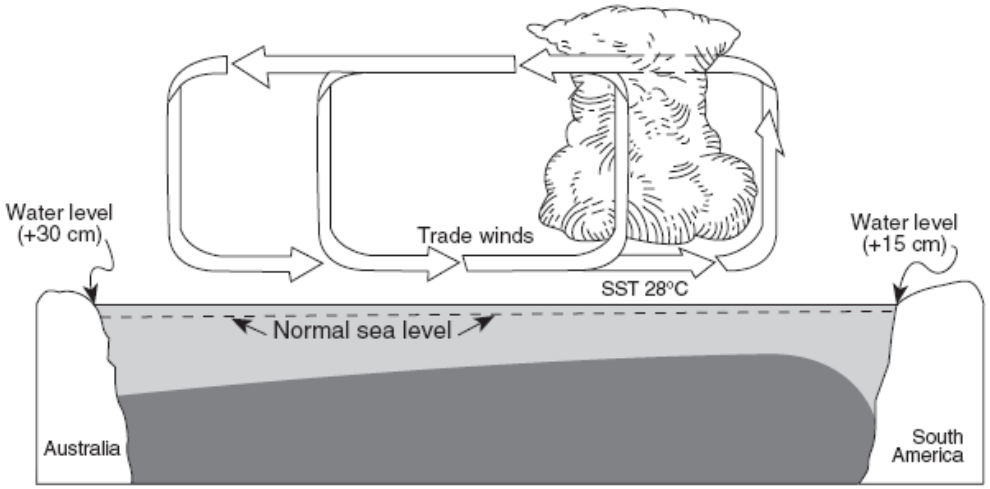
(4)

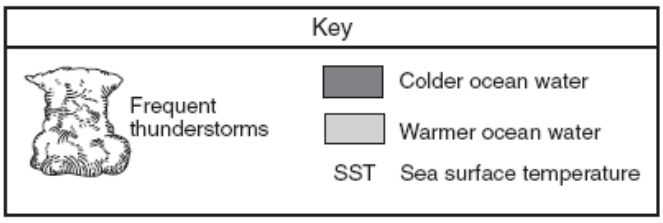
Base your answers to questions 50 through 54 on the two cross sections below, which represent the Pacific Ocean and the atmosphere near the Equator during normal weather (cross section *A*) and during El Niño conditions (cross section *B*). Sea surface temperatures (SST) are labeled and trade-wind directions are shown with arrows. Cloud buildup indicates regions of frequent thunderstorm activity. The change from normal sea level is shown at the side of each diagram.

Cross Section A: Normal Weather



Cross Section B: El Niño Conditions





?

50 Which statement correctly describes sea surface temperatures along the South American coast and Pacific trade winds during El Niño conditions?

(1) The sea surface temperatures are warmer than normal, and Pacific trade winds are from the west.

(2) The sea surface temperatures are warmer than normal, and Pacific trade winds are from the east.

(3) The sea surface temperatures are cooler than normal, and Pacific trade winds are from the west.

(4) The sea surface temperatures are cooler than normal, and Pacific trade winds are from the east.

?

51 Compared to normal weather conditions, the shift of the trade winds caused sea levels during El Niño conditions to

(1) decrease at both Australia and South America
(2) decrease at Australia and increase at South America
(3) increase at Australia and decrease at South America
(4) increase at both Australia and South America

?

52 During El Niño conditions, thunderstorms increase in the eastern Pacific Ocean region because the warm, moist air is

(1) less dense, sinking, compressing, and warming
(2) less dense, rising, expanding, and cooling
(3) more dense, sinking, compressing, and warming
(4) more dense, rising, expanding, and cooling

?

53 The development of El Niño conditions over this region of the Pacific Ocean has caused

(1) changes in worldwide precipitation patterns
(2) the reversal of Earth's seasons
(3) increased worldwide volcanic activity
(4) decreased ozone levels in the atmosphere

?

54 Earth's entire equatorial climate zone is generally a belt around Earth that has

(1) high air pressure and wet weather
(2) high air pressure and dry weather
(3) low air pressure and wet weather
(4) low air pressure and dry weather

?

55 The planetary winds in Earth's Northern Hemisphere generally curve to the right due to Earth's

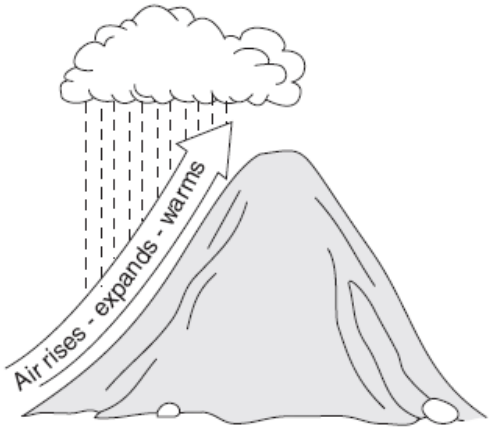
(1) orbit around the Sun
(2) spin on its axis
(3) magnetic field
(4) force of gravity

?

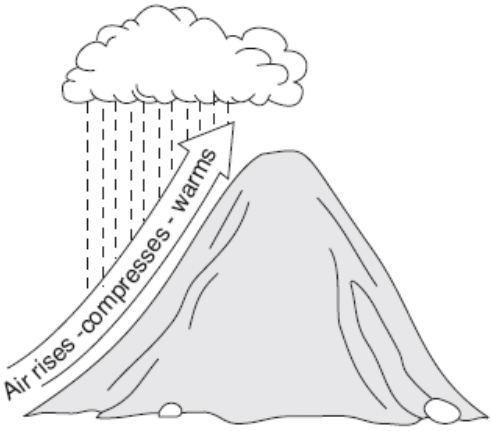
56 Which of these characteristics identify an Earth surface that is likely to be the best absorber of insolation?

(1) light colored and smooth
(2) light colored and rough
(3) dark colored and smooth
(4) dark colored and rough

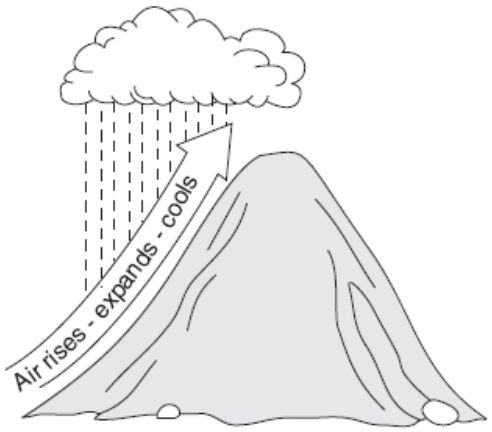
57 Which diagram best illustrates how air rising over a mountain produces precipitation?



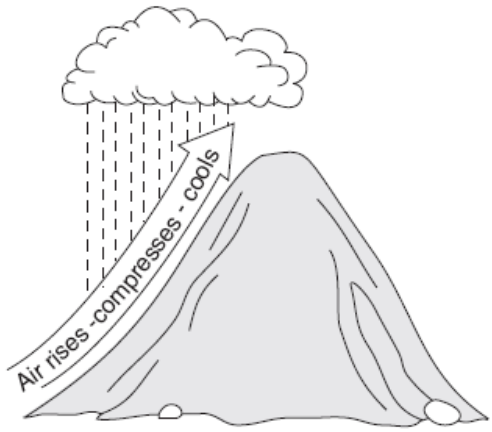
(1)



(3)



(2)



(4)

58 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°C, what was the wet-bulb temperature?

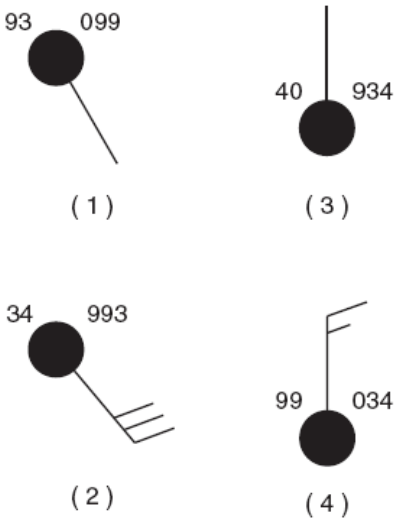
(1) 5°C
(2) 7°C
(3) 3°C
(4) 10°C

59 An air temperature of 95ºC most often exists in which layer of the atmosphere?

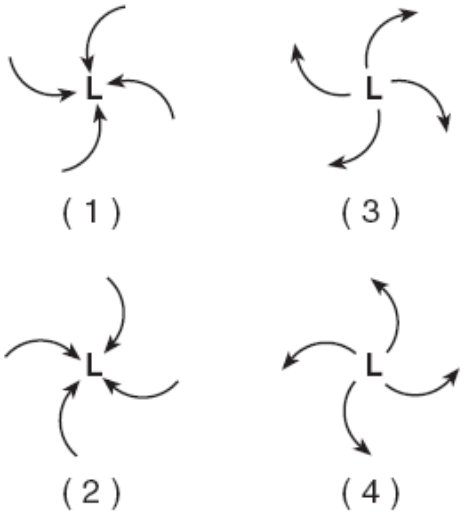
(1) troposphere
(2) stratosphere
(3) mesosphere
(4) thermosphere

?

60 Which weather-station model shows an air pressure of 993.4 millibars?

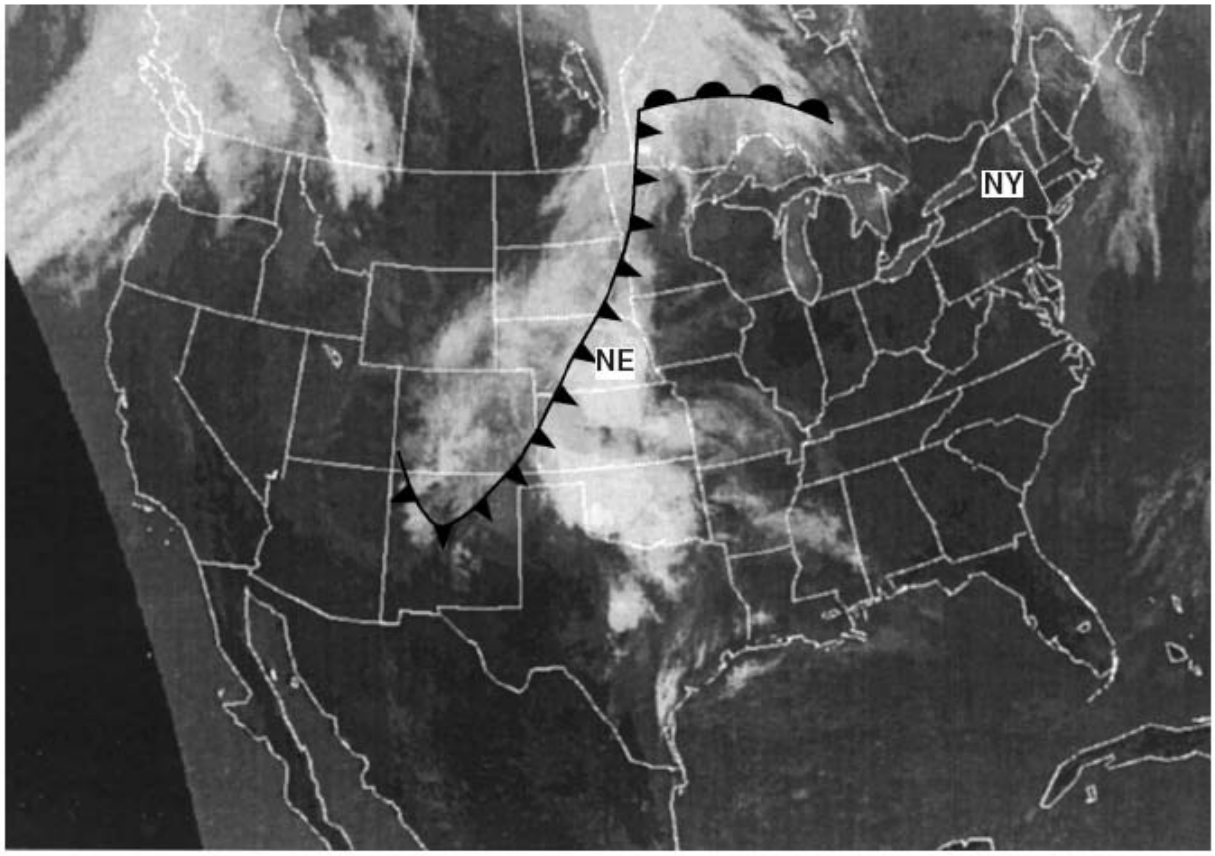


61 Which map view best shows the movement of surface air around a low-pressure system in the Northern Hemisphere?



?

Base your answers to questions 62 and 63 on the satellite image below, which shows cloud patterns associated with weather fronts over the United States on a certain day. The states of Nebraska (NE) and New York (NY) have been labeled.



?

62 At the time this satellite image was taken, what were the weather conditions in New York State?

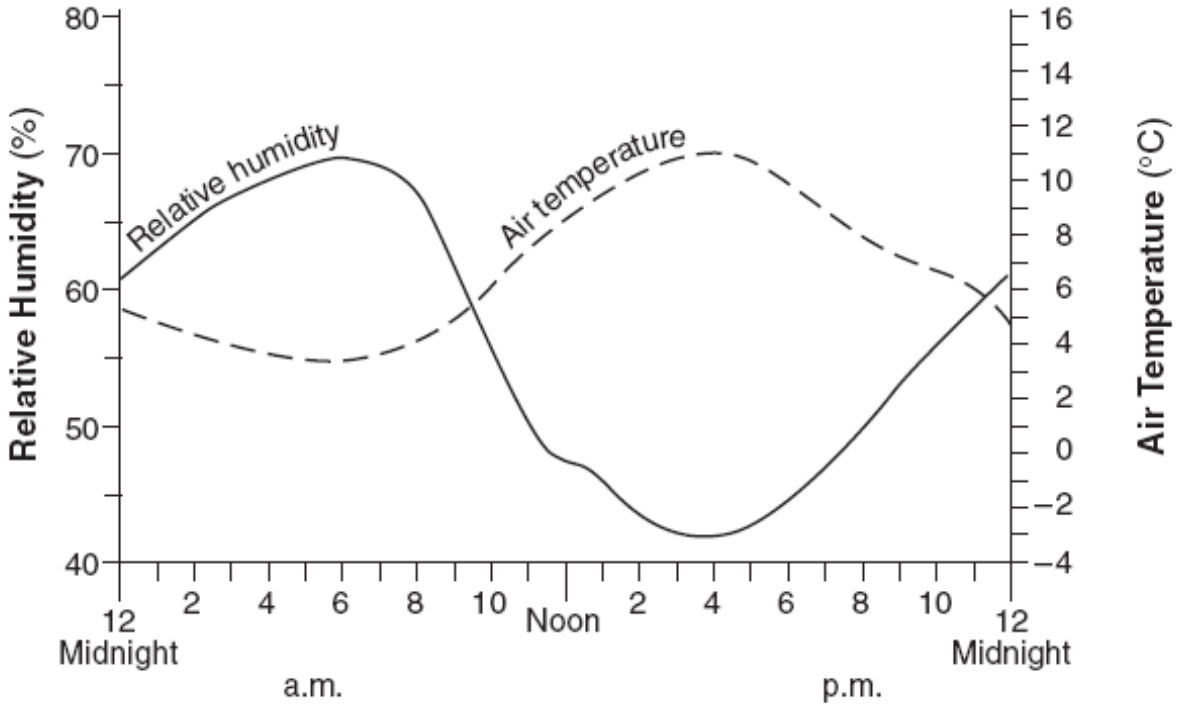
(1) clear skies with no precipitation
(2) mostly cloudy in the northern part of the State and clear in the southern part
(3) cloudy with heavy precipitation
(4) very cloudy with no precipitation

63 Which type of front was producing the weather in Nebraska when this image was taken?

(1) cold front
(2) warm front
(3) stationary front
(4) occluded front

?

Base your answers to questions 64 and 65 on the graph below, which shows the changes in relative humidity and air temperature during a spring day in Washington, D.C.



64 Which statement best describes the relationship between relative humidity and air temperature as shown by the graph?

(1) Relative humidity decreases as air temperature decreases.
(2) Relative humidity decreases as air temperature increases.
(3) Relative humidity increases as air temperature increases.
(4) Relative humidity remains the same as air temperature decreases.

65 What were the relative humidity and air temperature at noon on this day?

(1) 47% and 32°F
(2) 65% and 32°F
(3) 47% and 48°F
(4) 65% and 48°F

66 When the dry-bulb temperature is 22°C and the wet-bulb temperature is 13°C, the relative humidity is

(1) 10%
(2) 33%
(3) 41%
(4) 59%

67 As the altitude increases within Earth's stratosphere, air temperature generally

(1) decreases, only
(2) increases, only
(3) decreases, then increases
(4) increases, then decreases

68 Which characteristics of a building material would provide the most energy-absorbing exterior covering for a house?

(1) dark colored and smooth textured
(2) dark colored and rough textured
(3) light colored and smooth textured
(4) light colored and rough textured

69 Which weather change usually occurs when the difference between the air temperature and the dewpoint temperature is d*ecreasing*?

(1) The amount of cloud cover decreases.
(2) The probability of precipitation decreases.
(3) The relative humidity increases.
(4) The barometric pressure increases.

70 The Coriolis effect provides evidence that Earth

(1) rotates
(2) has a tilted axis
(3) has seasons
(4) revolves

71 As air on the surface of Earth warms, the density of the air

(1) decreases
(2) increases
(3) remains the same

72 Which atmospheric conditions would cause smoke from a campfire on a beach to blow toward the ocean?

(1) warm air over the land and cool air over the ocean
(2) humid air over the land and dry air over the ocean
(3) low-density air over the land and high density air over the ocean
(4) high air pressure over the land and low air pressure over the ocean

73 On a clear summer day, the surface of land is usually warmer than the surface of a nearby body of water because the water

(1) receives less insolation
(2) reflects less insolation
(3) has a higher density
(4) has a higher specific heat

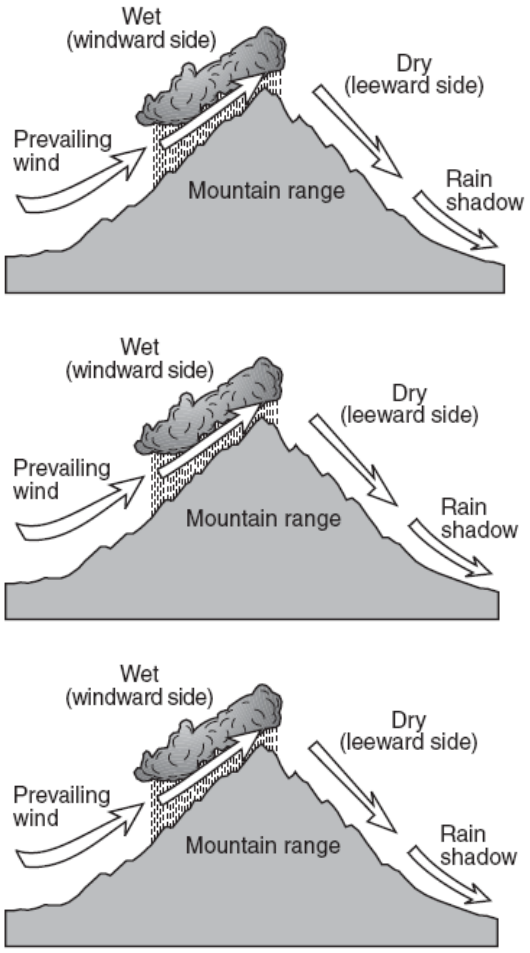
74 Which interaction between the atmosphere and the hydrosphere causes most surface ocean currents?

(1) cooling of rising air above the ocean surface
(2) evaporation of water from the ocean surface
(3) friction from planetary winds on the ocean surface
(4) seismic waves on the ocean surface

75 Ozone is concentrated in Earth's atmosphere at an altitude of 20 to 35 kilometers. Which atmospheric layer contains the greatest concentration of ozone?

(1) mesosphere
(2) thermosphere
(3) troposphere
(4) stratosphere

The cross section below shows how prevailing winds have caused different climates on the windward and leeward sides of a mountain range.



76 Why does the windward side of this mountain have a wet climate?

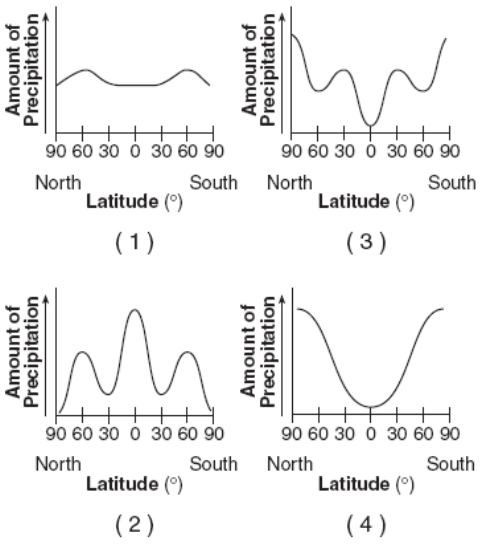
(1) Rising air compresses and cools, causing the water droplets to evaporate.

(2) Rising air compresses and warms, causing the water vapor to condense.

(3) Rising air expands and cools, causing the water vapor to condense.

(4) Rising air expands and warms, causing the water droplets to evaporate.

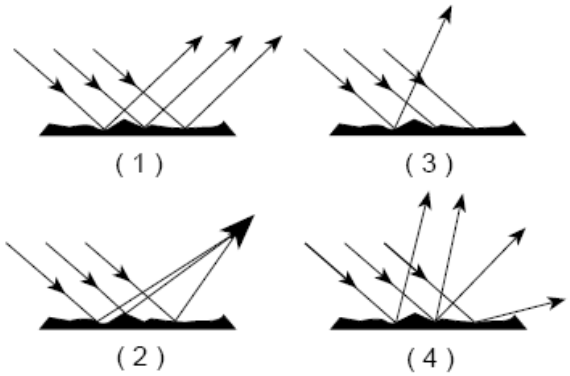
77 Which graph best shows the average annual amounts of precipitation received at different latitudes on Earth?



78 During which process does heat transfer occur because of density differences?

(1) conduction (3) radiation
(2) convection (4) reflection

79 Which diagram best represents visible light rays after striking a dark, rough surface?



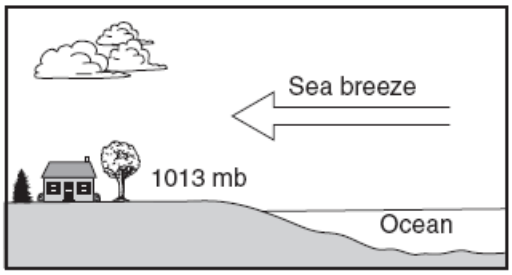
80 Very cold climates occur at Earth's North and South Poles because the polar regions

(1) are usually farthest from the Sun
(2) absorb the greatest amount of insolation
(3) receive the most hours of daylight
(4) receive low-angle insolation

81 A barometric pressure of 1021.0 millibars is equal to how many inches of mercury?

(1) 29.88 (3) 30.25
(2) 30.15 (4) 30.50

The cross section below shows a sea breeze blowing from the ocean toward the land. The air pressure at the land surface is 1013 millibars.

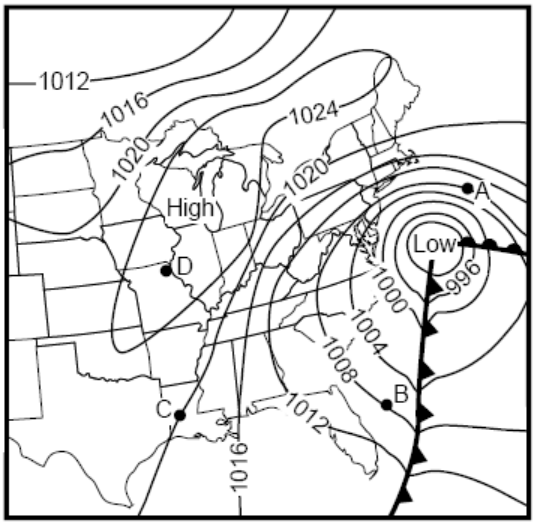


(Not drawn to scale)

82 The air pressure at the ocean surface a few miles from the shore is most likely

(1) 994 mb (3) 1013 mb
(2) 1005 mb (4) 1017 mb

Base your answers to questions 83 through 85 on the weather map below. Points *A*, *B*, *C*, and *D* are locations on Earth's surface.



83 The isolines on the map represent values of air

(1) density (3) pressure
(2) humidity (4) temperature

84 The strongest winds are closest to location

(1) *A* (3) *C*
(2) *B* (4) *D*

85 Which type of front extends southward from the center of the low?

(1) occluded (3) warm
(2) stationary (4) cold

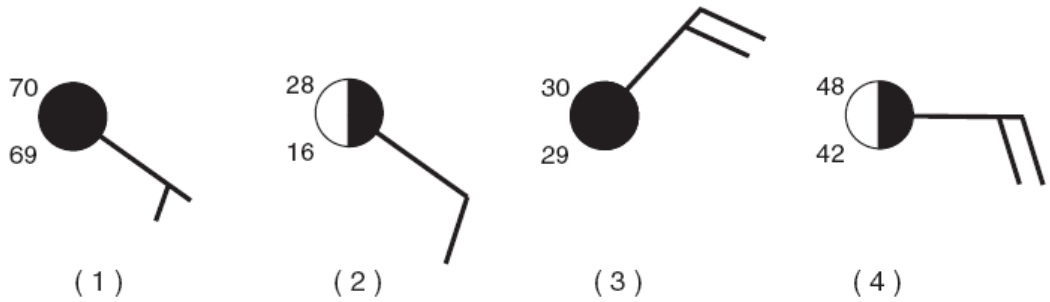
86 Mt. Marcy often has the coldest nighttime temperatures in New York State because of its

(1) latitude and planetary winds
(2) latitude and elevation
(3) longitude and planetary winds
(4) longitude and elevation

87 What is the dewpoint temperature when the relative humidity is 30% and the air temperature is 20°C?

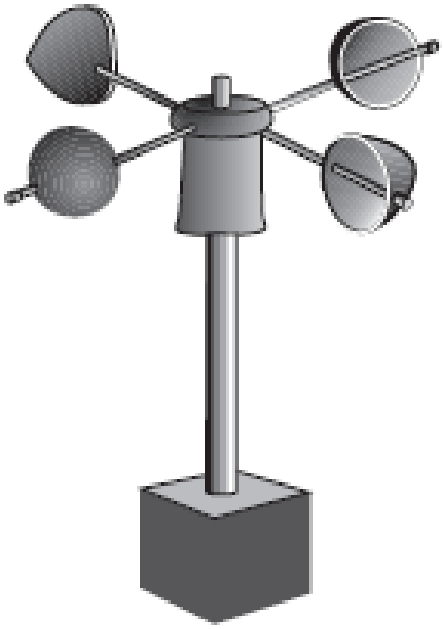
(1) –28°C (3) 6°C
(2) 2°C (4) 9°C

88 On which station model would the present weather symbol * most likely be found?



(1) (2) (3) (4)

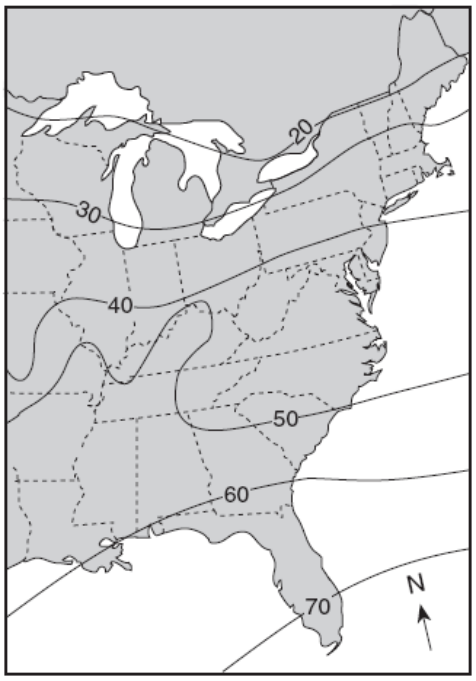
An instrument used to measure a weather variable is shown below.



89 Which weather variable is measured by this instrument?

(1) wind direction
(2) air pressure
(3) wind speed
(4) amount of rainfall

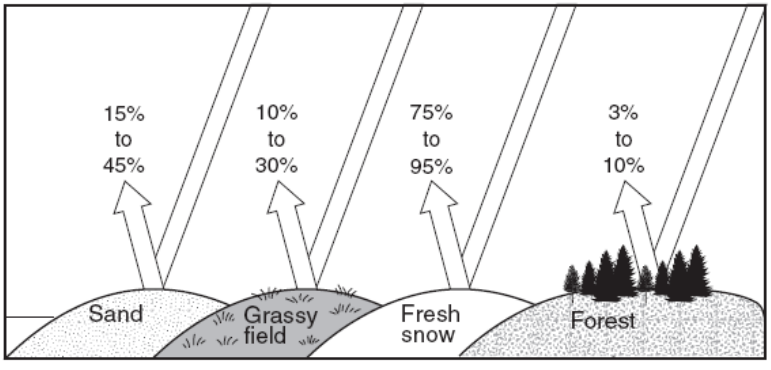
The map below shows a weather variable recorded at noon on a certain day. Isolines show values from 20 to 70.



90 Which atmospheric variable is most likely represented by the isolines on this map?

(1) snowfall in inches
(2) wind speed in knots
(3) barometric pressure in millibars
(4) air temperature in degrees Fahrenheit

The diagram below indicates the amount of solar radiation that is reflected by equal areas of various materials on Earth's surface.



91 Which material absorbs the most solar radiation?

(1) grassy field
(2) fresh snow
(3) sand
(4) forest

92 What causes the Coriolis effect?

(1) Earth's tilt on its axis

(2) the spin of Earth on its axis
(3) the orbital motion of the Moon around Earth
(4) the orbital motion of Earth around the Sun

93 Which weather instrument is used to measure wind speed?

(1) anemometer
(2) wind vane
(3) psychrometer
(4) thermometer

94 The upward movement of air in the atmosphere generally causes the temperature of that air to

(1) decrease and become closer to the dewpoint

(2) decrease and become farther from the dewpoint

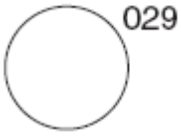
(3) increase and become closer to the dewpoint

(4) increase and become farther from the dewpoint

95 What is the relative humidity when the dry-bulb temperature is 16°C and the wet-bulb temperature is 14°C?

(1) 90%
(2) 80%
(3) 14%
(4) 13%

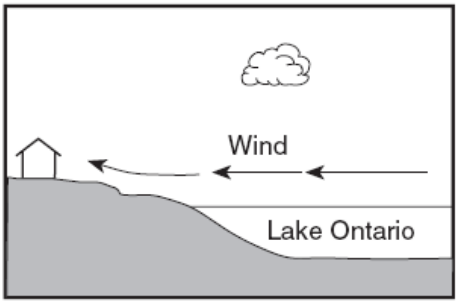
A weather station model is shown below.



96 What is the barometric pressure indicated by this station model?

(1) 0.029 mb
(2) 902.9 mb
(3) 1002.9 mb
(4) 1029.0 mb

The cross section below shows a house on the shore of Lake Ontario in August.



(Not drawn to scale)

97 Under which conditions would the wind shown in the cross section most likely occur?

(1) at 2 a.m., when the air over land is 70°F and the air over the lake is 80°F

(2) at 6 a.m., when the air over land is 70°F and the air over the lake is 70°F

(3) at 2 p.m., when the air over land is 80°F and the air over the lake is 70°F

(4) at 10 p.m., when the air over land is 70°F and the air over the lake is 72°F

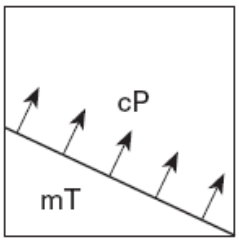
98 Which type of surface absorbs the greatest amount of electromagnetic energy from the Sun?

(1) smooth, shiny, and light colored
(2) smooth, shiny, and dark colored
(3) rough, dull, and light colored
(4) rough, dull, and dark colored

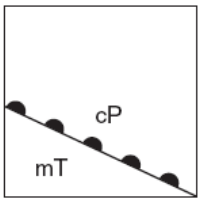
99 Which weather variable can be determined by using a psychrometer?

(1) barometric pressure
(2) cloud cover
(3) relative humidity
(4) wind speed

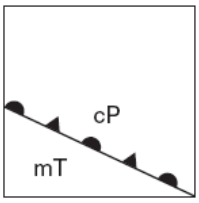
The map below shows the boundary between two air masses. The arrows show the direction in which the boundary is moving.



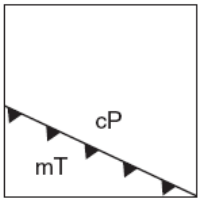
100 Which weather map uses the correct weather front symbol to illustrate this information?



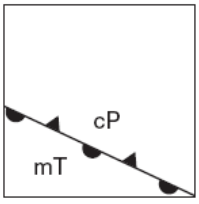
(1)



(3)



(2)



(4)

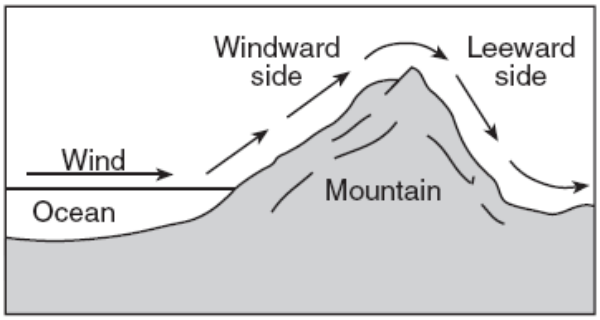
101 Which New York State location is most likely to experience the heaviest winter snowfall when the surface winds are blowing from the west or northwest?

(1) New York City (3) Oswego
(2) Binghamton (4) Plattsburgh

102 Which weather map symbol represents air masses that normally form just south of the United States over the Caribbean Sea?

(1) cP (3) mP
(2) cT (4) mT

The cross section below shows the flow of winds over a mountain ridge.



103 The heaviest rainfall would most likely occur on which side of this mountain and in which type of air mass?

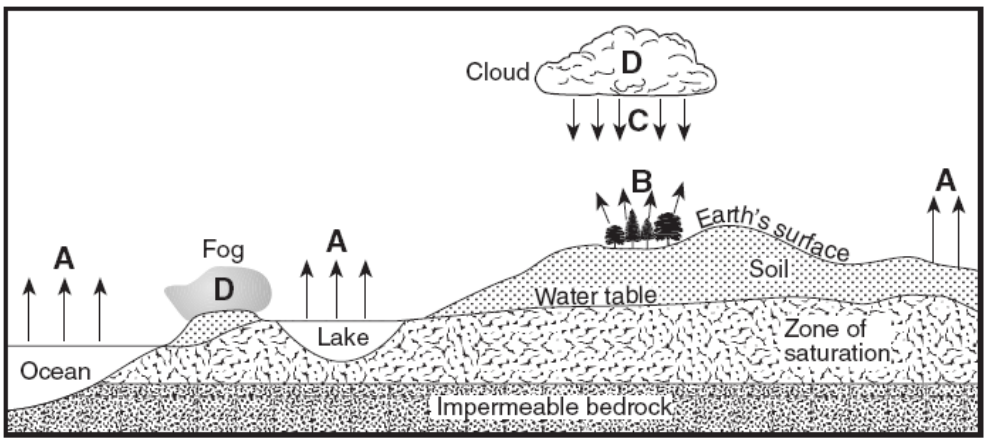
(1) on the leeward side, in a mP air mass
(2) on the leeward side, in a cT air mass
(3) on the windward side, in a mT air mass
(4) on the windward side, in a cP air mass

?

104 If a low-pressure system follows a typical storm track across New York State, it will move toward the

(1) southeast (3) northeast
(2) southwest (4) northwest

Base your answers to questions 105 and 106 on the cross section below, which represents part of Earth's water cycle. Letters *A*, *B*, *C*, and *D* represent processes that occur during the cycle. The level of the water table and the extent of the zone of saturation are shown.



?

105 Which two letters represent processes in the water cycle that usually cause a lowering of the water table?

(1) *A* and *B* (3) *B* and *D*
(2) *A* and *C* (4) *C* and *D*

?

106 What are two water cycle processes *not* represented by arrows in this cross section?

(1) transpiration and condensation (3) precipitation and freezing
(2) evaporation and melting (4) runoff and infiltration

?

107 Which factor most likely causes two cities at the same elevation and latitude to have different yearly average temperature ranges?

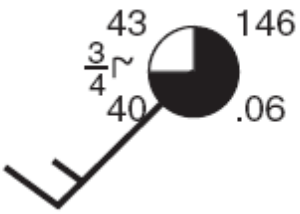
(1) rotation of Earth
(2) duration of insolation
(3) distance from a large body of water
(4) direction of prevailing winds

108 In which direction do the surface winds blow around a high-pressure system in the Northern Hemisphere?

(1) clockwise and inward
(2) clockwise and outward
(3) counterclockwise and inward
(4) counterclockwise and outward

?

Various weather conditions at LaGuardia Airport in New York City are shown on the station model below.



109 What were the barometric pressure and weather conditions at the airport at the time of the observation?

(1) 914.6 mb of pressure and smog
(2) 914.6 mb of pressure and a clear sky
(3) 1014.6 mb of pressure and smog
(4) 1014.6 mb of pressure and a clear sky

110 The properties of an air mass are mostly determined by the

(1) rate of Earth's rotation
(2) direction of Earth's surface winds
(3) source region where the air mass formed
(4) path the air mass follows along a land surface

111 Which list correctly matches each instrument with the weather variable it measures?

(1) wind vane—wind speed
thermometer—temperature
precipitation gauge—relative humidity

(2) wind vane—wind direction
thermometer—dewpoint
psychrometer—air pressure

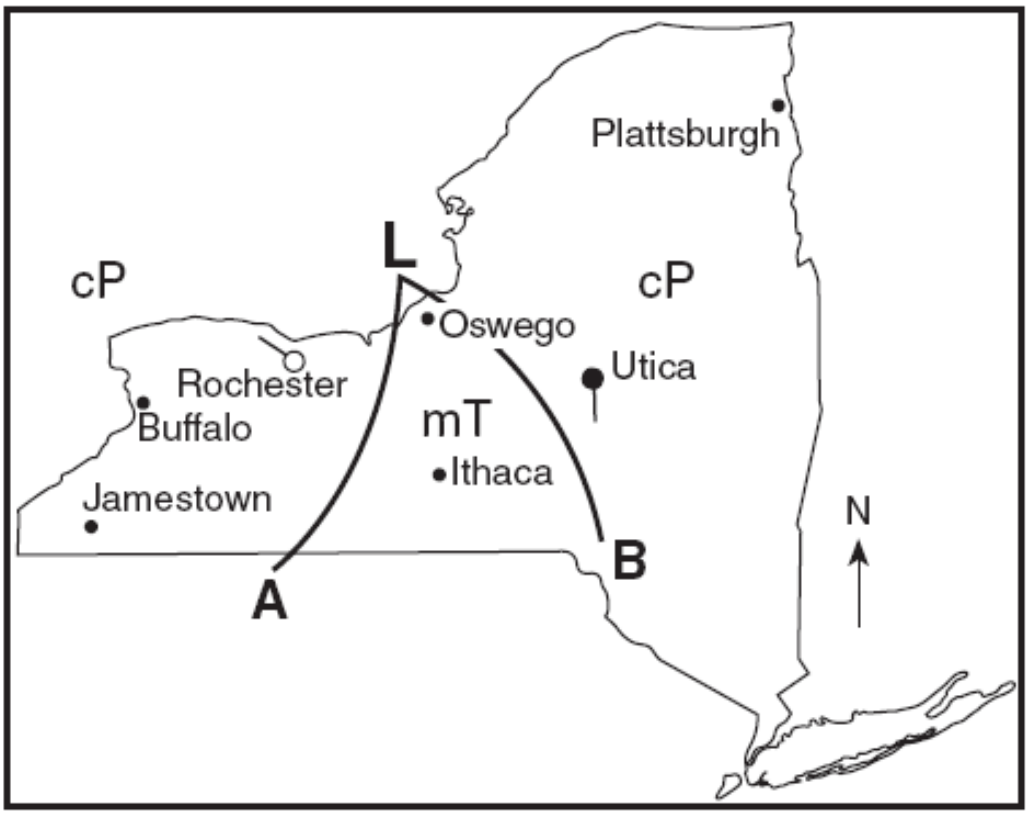
(3) barometer—relative humidity
anemometer—cloud cover
precipitation gauge—probability of precipitation

(4) barometer—air pressure
anemometer—wind speed
psychrometer—relative humidity

112 What is the difference between the dry-bulb temperature and the wet-bulb temperature when the relative humidity is 28% and the dry-bulb temperature is 0°C?

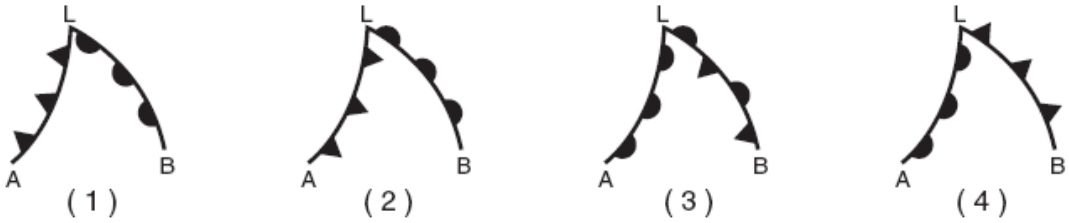
(1) 11°C (3) 28°C
(2) 2°C (4) 4°C

Base your answers to questions 113 through 115 on the weather map below and on your knowledge of Earth science. The weather map shows a typical low-pressure system and associated weather fronts labeled *A* and *B*. The L indicates the center of the low-pressure system. A few New York State cities are shown. Symbols cP and mT represent different air masses. The wind direction at Utica and Rochester is shown on the station models.



?

113 Which front symbols are drawn correctly, based on the air masses shown?



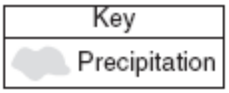
?

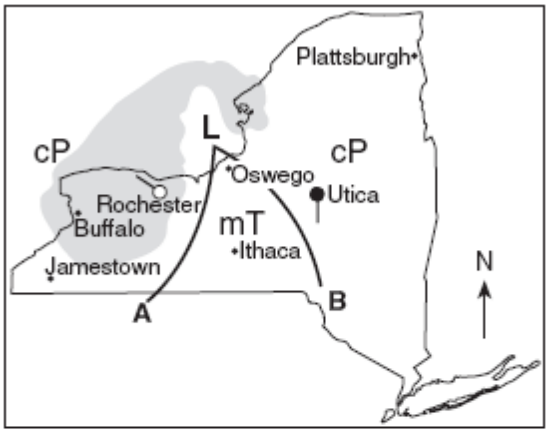
114 If this weather system is following a normal storm track, the center of this low is most likely moving toward which city?

(1) Buffalo
(2) Ithaca
(3) Utica
(4) Plattsburgh

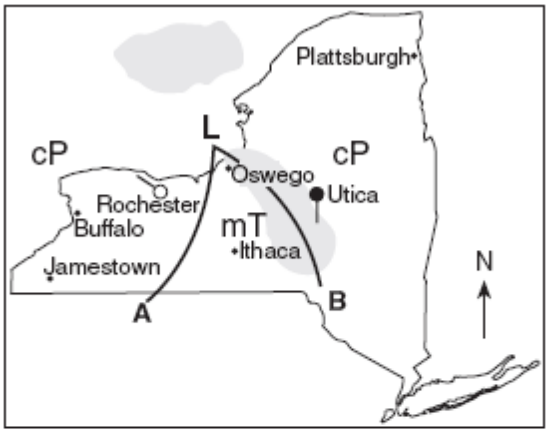
?

115 Which map shows the regions that are most likely experiencing the precipitation associated with this weather system?

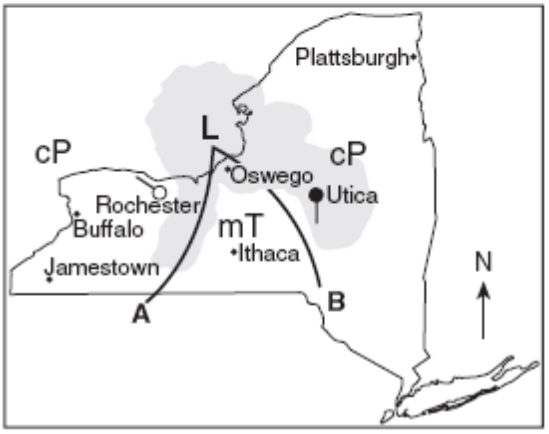




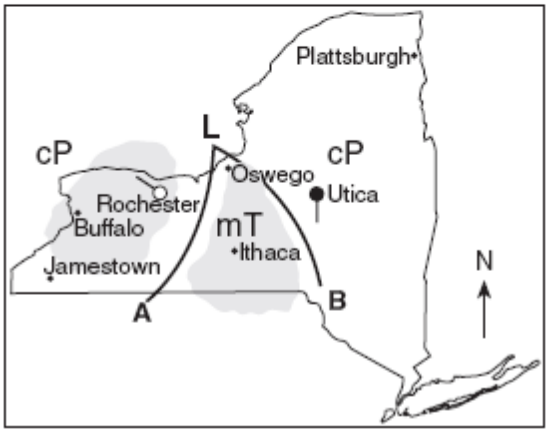
(1)



(3)

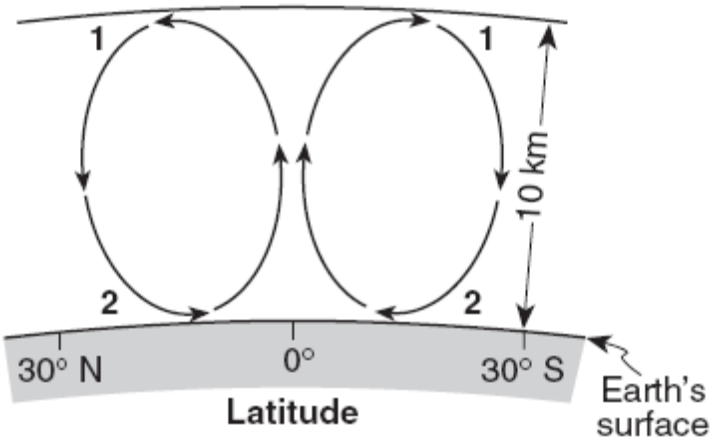


(2)



(4)

Base your answers to questions 116 through 50 on the cross section below and on your knowledge of Earth science. The cross section shows the general movement of air within a portion of Earth's atmosphere located between 30° N and 30° S latitude. Numbers 1 and 2 represent different locations in the atmosphere.



(Not drawn to scale)

?

116 Which temperature zone layer of Earth's atmosphere is shown in the cross section?

(1) troposphere
(2) stratosphere
(3) mesosphere
(4) thermosphere

?

117 The air movement shown in the cross section is due to the process of

(1) condensation
(2) conduction
(3) evaporation
(4) convection

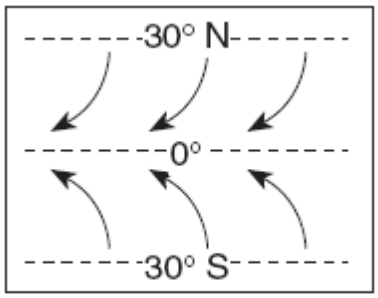
?

118 What is the approximate percentage by volume of oxygen present in Earth's atmosphere at location 2?

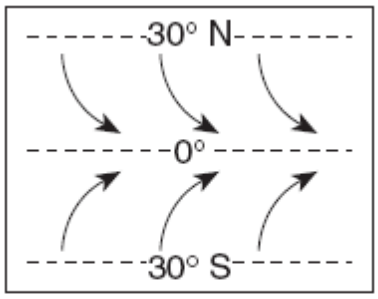
(1) 10%
(2) 21%
(3) 33%
(4) 46%

?

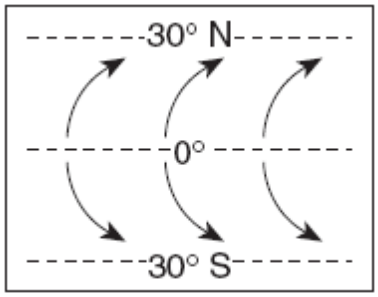
119 Which map best shows the surface movement of winds between 30° N and 30° S latitude?



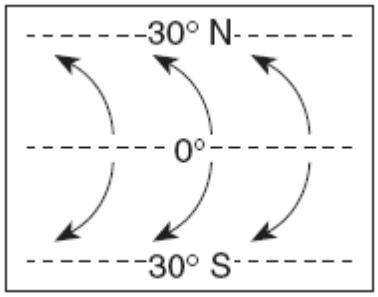
(1)



(3)



(2)



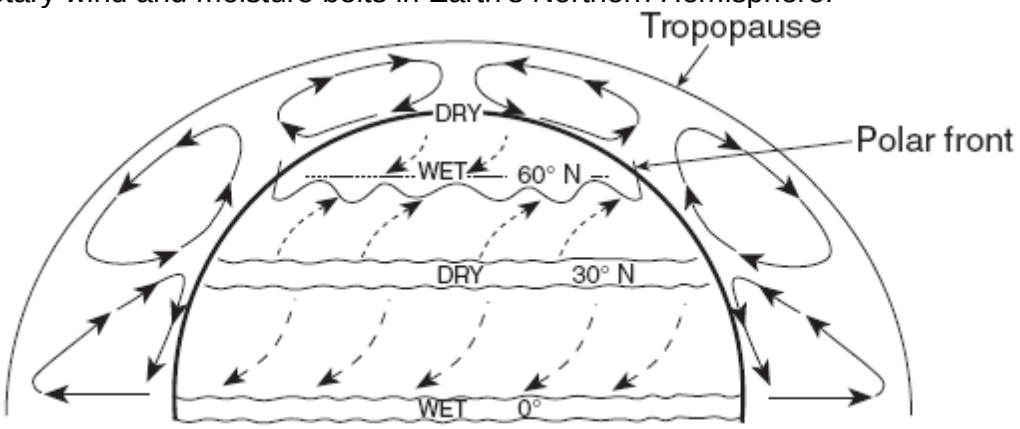
(4)

?

120 Which type of land surface would probably reflect the most incoming solar radiation?

(1) light colored and smooth
(2) light colored and rough
(3) dark colored and smooth
(4) dark colored and rough

Base your answers to questions 121 through 123 on the diagram below, which represents the planetary wind and moisture belts in Earth's Northern Hemisphere.



(Not drawn to scale)

?

121 The climate at 90° north latitude is dry because the air at that location is usually

(1) warm and rising
(2) warm and sinking
(3) cool and rising
(4) cool and sinking

?

122 The paths of the surface planetary winds are curved due to Earth's

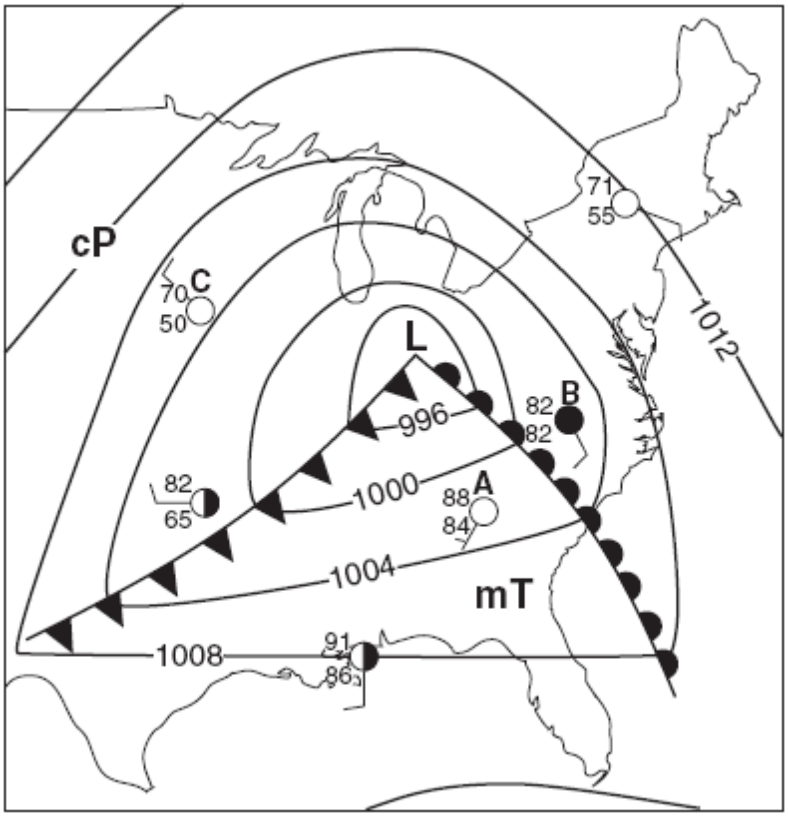
(1) revolution
(2) rotation
(3) circumference
(4) size

?

123 The tropopause is approximately how far above sea level?

(1) 12 mi
(2) 12 km
(3) 60 mi
(4) 60 km

Base your answers to questions 124 through 42 on the weather map below. The map shows a low-pressure system and some atmospheric conditions at weather stations *A*, *B*, and *C*.



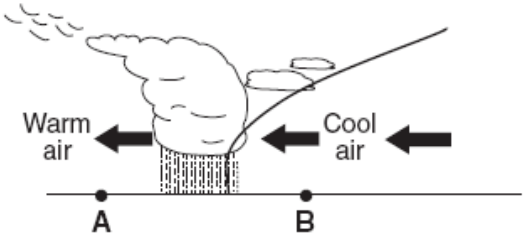
?

124 Which type of weather is usually associated with a cP air mass, as shown near weather station *C*?

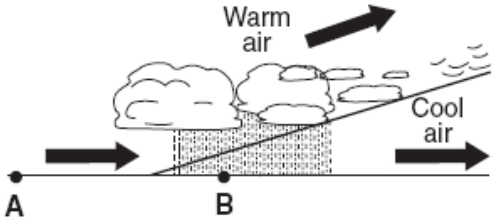
(1) moist and cool (3) dry and cool
(2) moist and warm (4) dry and warm

?

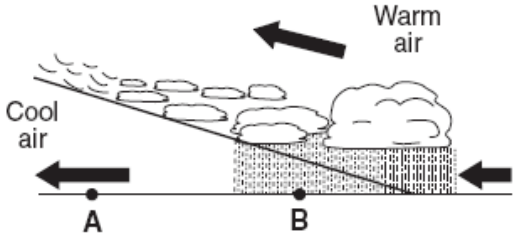
125 Which cross section best represents the air masses, air movement, clouds, and precipitation occurring behind and ahead of the warm front located between stations *A* and *B*?



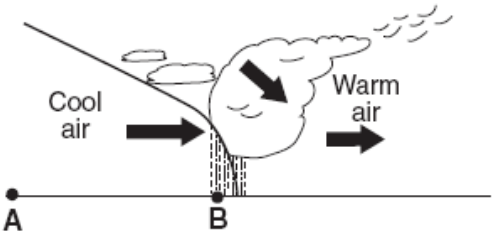
(1)



(3)



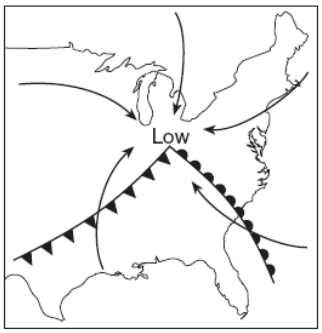
(2)



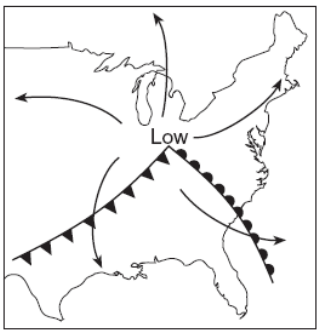
(4)

?

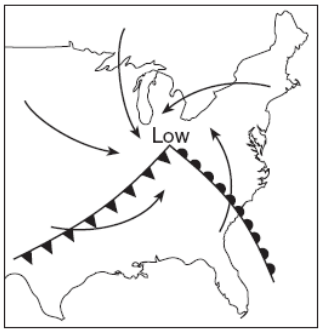
126 The arrows on which map best represent the direction of surface winds associated with this low-pressure system?



(1)



(3)



(2)

(4)

?

127 If this weather system follows a normal storm track, the low-pressure center (L) will generally move toward the

(1) northeast
(2) northwest
(3) southeast
(4) southwest

?

128 Students wish to study the effect of elevation above sea level on air temperature and air pressure. They plan to hike in the Adirondack Mountains from Heart Lake, elevation 2,179 feet, to the peak of Mt. Marcy, elevation 5,344 feet.

Which instruments should they use to collect their data?

(1) anemometer and psychrometer
(2) anemometer and barometer
(3) thermometer and psychrometer
(4) thermometer and barometer

?

129 A square meter of surface of which of these natural areas would most likely absorb the most insolation during a clear day?

(1) a fast-moving river
(2) a dark-green forest
(3) a beach with white sand
(4) a snow-covered field

?

130 Weather-station measurements indicate that the dewpoint temperature and air temperature are getting farther apart and that air pressure is rising.

Which type of weather is most likely arriving at the station?

(1) a snowstorm
(2) a warm front
(3) cool, dry air
(4) maritime tropical air

?

131 Land surfaces of Earth heat more rapidly than water surfaces because

(1) more energy from the Sun falls on land than on water
(2) land has a lower specific heat than water
(3) sunlight penetrates to greater depths in land than in water
(4) less of Earth's surface is covered by land than by water

132 A student uses a sling psychrometer outdoors on a clear day. The dry-bulb (air) temperature is 10°C. The water on the wet bulb will most likely

(1) condense, causing the wet-bulb temperature to be higher than the air temperature

(2) condense, causing the wet-bulb temperature to be equal to the air temperature

(3) evaporate, causing the wet-bulb temperature to be lower than the air temperature

(4) evaporate, causing the wet-bulb temperature to be equal to the air temperature

133 Land surfaces of Earth heat more rapidly than water surfaces because

(1) more energy from the Sun falls on land than on water

(2) land has a lower specific heat than water

(3) sunlight penetrates to greater depths in land than in water

(4) less of Earth's

134 In which direction do surface winds around low pressure centers in the Northern Hemisphere generally move?

(1) counterclockwise, toward the center of the low

(2) clockwise, toward the center of the low

(3) counterclockwise, away from the center of the low

(4) clockwise, away from the center of the low

135 Most of Earth's surface ocean current patterns are primarily caused by

(1) the force of gravity
(2) the impact of precipitation
(3) prevailing winds
(4) river currents

136 A student uses a sling psychrometer outdoors on a clear day. The dry-bulb (air) temperature is 10°C. The water on the wet bulb will most likely

(1) condense, causing the wet-bulb temperature to be higher than the air temperature

(2) condense, causing the wet-bulb temperature to be equal to the air temperature

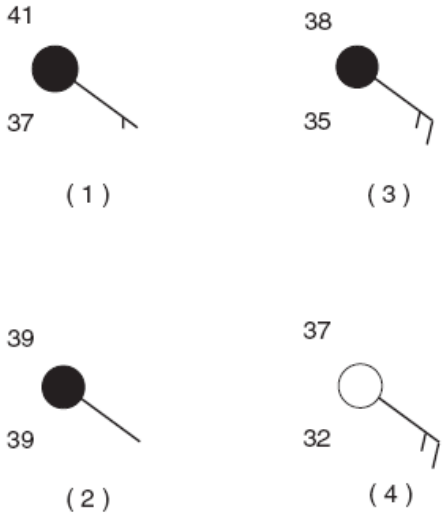
(3) evaporate, causing the wet-bulb temperature to be lower than the air temperature

(4) evaporate, causing the wet-bulb temperature to be equal to the air temperature

137 In which direction do surface winds around low pressure centers in the Northern Hemisphere generally move?

(1) counterclockwise, toward the center of the low
(2) clockwise, toward the center of the low
(3) counterclockwise, away from the center of the low
(4) clockwise, away from the center of the low

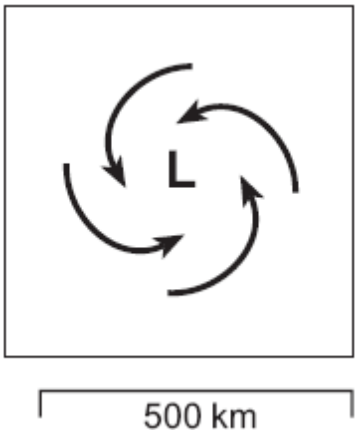
138 Which weather station model shows the highest relative humidity?



139 Most water vapor enters the atmosphere by the processes of

(1) convection and radiation
(2) condensation and precipitation
(3) evaporation and transpiration
(4) erosion and conduction

A map view of surface air movement in a low pressure system is shown below.



?

140 The air near the center of this low-pressure system usually will

(1) evaporate into a liquid
(2) reverse direction
(3) rise and form clouds
(4) squeeze

?

141 Liquid water can store more heat energy than an equal amount of any other naturally occurring substance because liquid water

(1) covers 71% of Earth's surface
(2) has its greatest density at 4°C
(3) has the higher specific heat
(4) can be changed into a solid or a gas

?

142 By which process do plants add water vapor to the atmosphere?

(1) precipitation
(2) transpiration
(3) condensation
(4) absorption

?

142 Which change would cause a *decrease* in the amount of insolation absorbed at Earth's surface?

(1) a decrease in cloud cover
(2) a decrease in atmospheric transparency
(3) an increase in the duration of daylight
(4) an increase in nitrogen gas

Base your answers to questions 143 through 145 on the weather map of North America below. The map shows the location of a front and the air mass influencing its movement.

?

143 Which region is the probable source of the air mass labeled cP on the map?

(1) central Canada
(2) southwestern United States
(3) North Atlantic Ocean
(4) Gulf of Mexico

?

144 Which type of front and frontal movement is shown on the weather map?

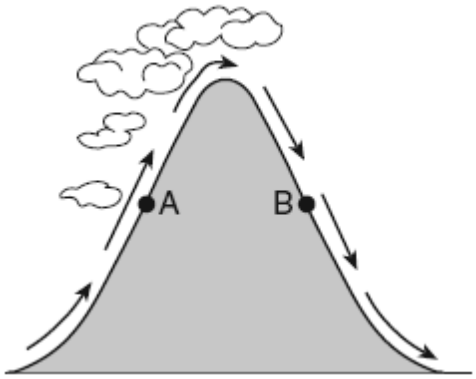
(1) cold front moving northwestward
(2) cold front moving southeastward
(3) warm front moving northwestward
(4) warm front moving southeastward

?

145 The cP air mass is identified on the basis of its temperature and

(1) wind direction (3) moisture content
(2) cloud cover (4) windspeed

The cross section below shows the direction of air flowing over a mountain. Points *A* and *B* are at the same elevation on opposite sides of the mountain.



?

146 Compared to the air temperature and humidity at point *A*, the air temperature and humidity at point *B* are usually

(1) cooler and drier (3) warmer and drier
(2) cooler and wetter (4) warmer and wetter

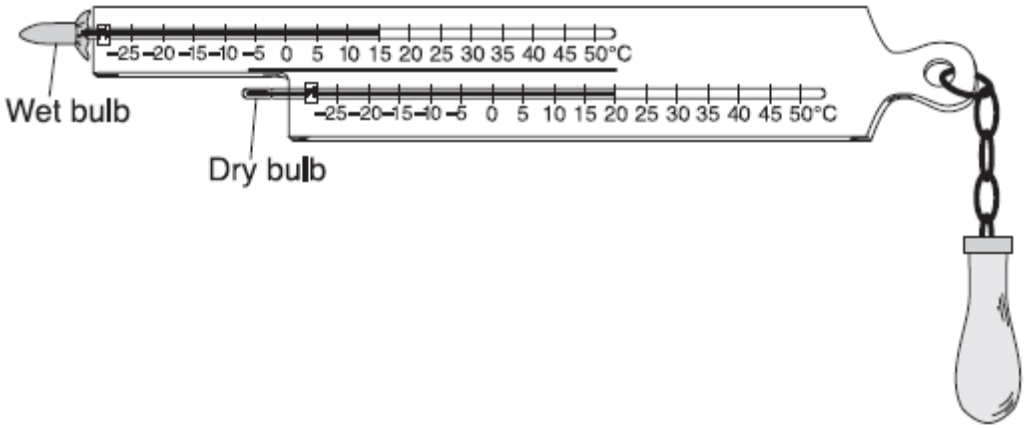
147 Cloud formation is likely to occur in rising air because rising air

(1) expands and cools
(2) expands and warms
(3) contracts and cools
(4) contracts and warms

148 In which two temperature zones of the atmosphere does the temperature increase with increasing altitude?

(1) troposphere and stratosphere
(2) troposphere and mesosphere
(3) stratosphere and thermosphere
(4) mesosphere and thermosphere

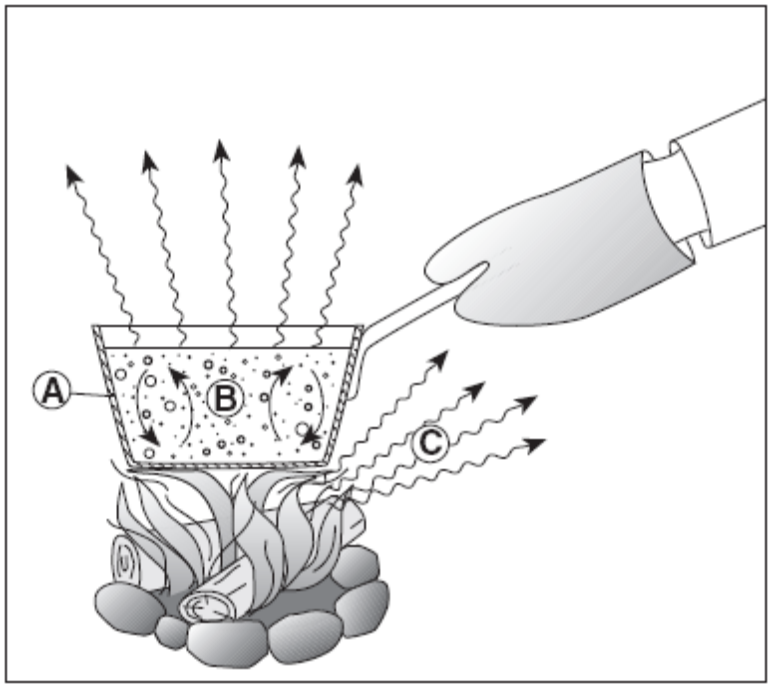
The diagram below shows a sling psychrometer.



149 Based on the dry-bulb temperature and the wet-bulb temperature, what is the dewpoint?

(1) 5°C
(2) 12°C
(3) 14°C
(4) 16°C

The diagram below shows a student heating a pot of water over a fire. The arrows represent the transfer of heat. Letter *A* represents heat transfer through the metal pot, *B* represents heat transfer by currents in the water, and *C* represents heat that is felt in the air surrounding the pot.



?

150 Which table correctly identifies the types of heat transfer at *A*, *B*, and *C*?

Letter	Type of Heat Transfer
A	conduction
B	radiation
C	convection

(1)

Letter	Type of Heat Transfer
A	radiation
B	conduction
C	convection

(3)

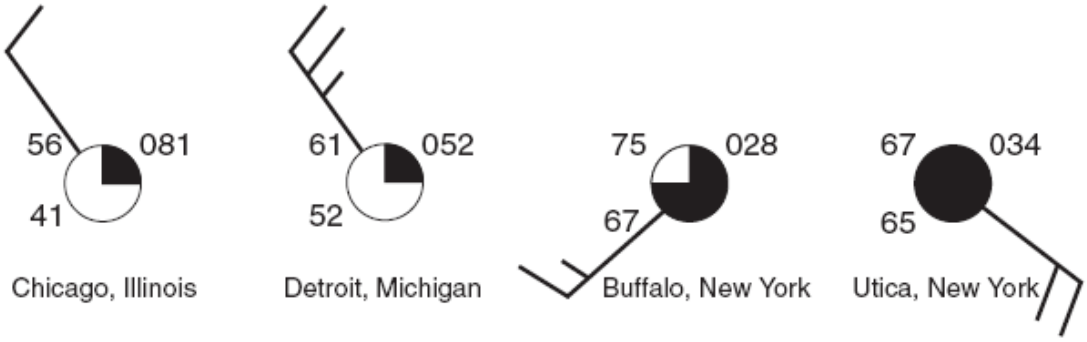
Letter	Type of Heat Transfer
A	conduction
B	convection
C	radiation

(2)

Letter	Type of Heat Transfer
A	radiation
B	convection
C	conduction

(4)

Base your answers to questions 151 through 153 on the station models below, which show various weather conditions recorded at the same time on the same day at four different cities.



?

151 Which wind speed was recorded at Detroit?

(1) 15 knots
(2) 25 knots
(3) 35 knots
(4) 45 knots

?

152 Which city had the lowest relative humidity?

(1) Chicago
(2) Detroit
(3) Buffalo
(4) Utica

?

153 Which weather symbol best represents the type of precipitation that was most likely occurring in Utica?

?

154 On sunny summer days, a breeze often develops that blows from large bodies of water toward nearby landmasses because the

(1) temperature of the air above the landmasses is greater

(2) specific heat of the landmasses is greater

(3) temperatures of the bodies of water are Greater

(4) air over the bodies of water becomes heavier with additional water vapor

155 The planetary wind belts in the troposphere are primarily caused by the

(1) Earth's rotation and unequal heating of Earth's surface

(2) Earth's revolution and unequal heating of Earth's surface

(3) Earth's rotation and Sun's gravitational attraction on Earth's atmosphere

(4) Earth's revolution and Sun's gravitational attraction on Earth's atmosphere

?

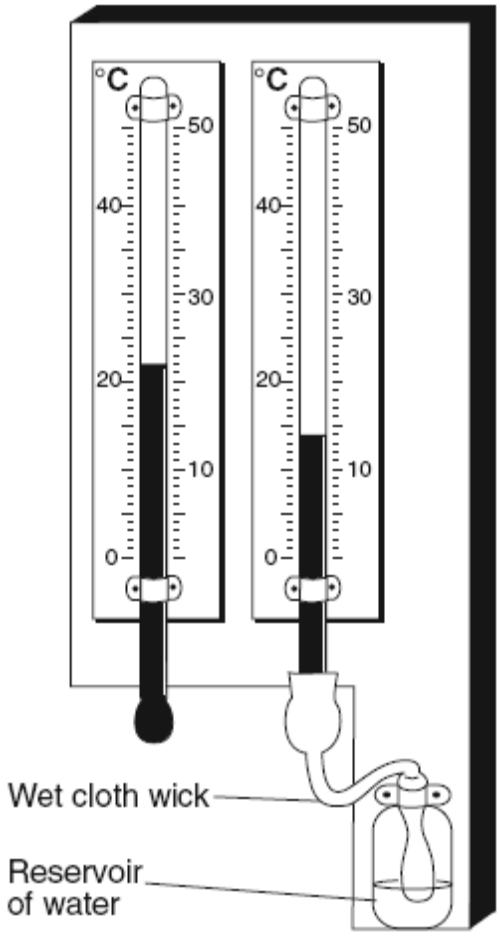
156 When Earth cools, most of the energy transferred from Earth's surface to space is transferred by the process of

(1) conduction (3) refraction
(2) reflection (4) radiation

157 The Coriolis effect causes winds in New York State to generally curve

(1) to the right of the direction of travel
(2) to the left of the direction of travel
(3) upward away from Earth's surface
(4) downward toward Earth's surface

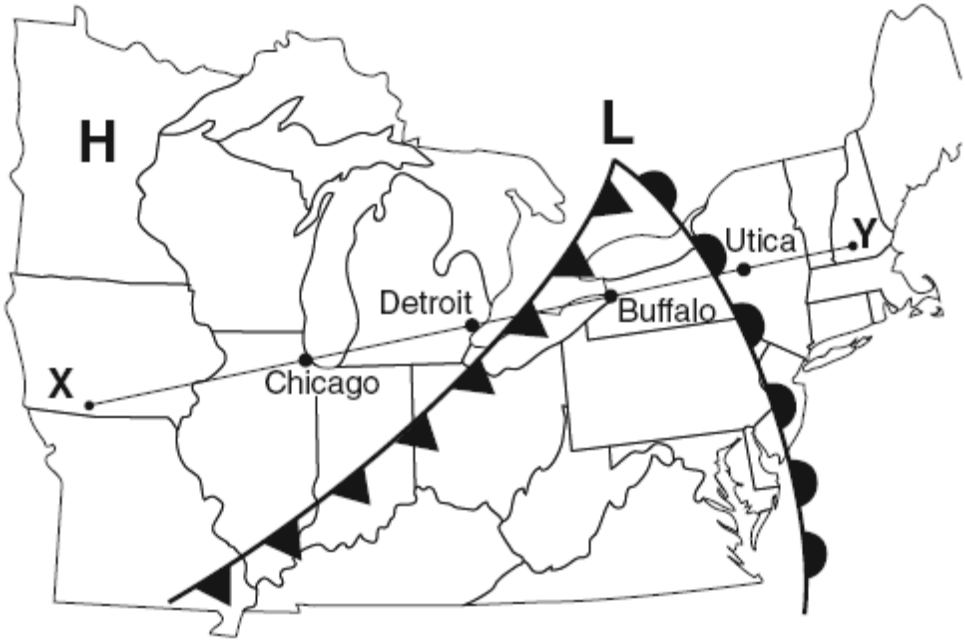
The weather instrument below is used to determine dewpoint and relative humidity.



158 Based on the temperatures shown, the approximate dewpoint and relative humidity are

(1) –19°C and 4%
(2) –5°C and 25%
(3) 8°C and 40%
(4) 12°C and 53%

Base your answers to questions 159 through 161 on the weather map below, which shows a high-pressur center (**H**) and a low-pressure center (**L**), with two fronts extending from the low-pressure center. Points *X* and *Y* are locations on the map connected by a reference line.



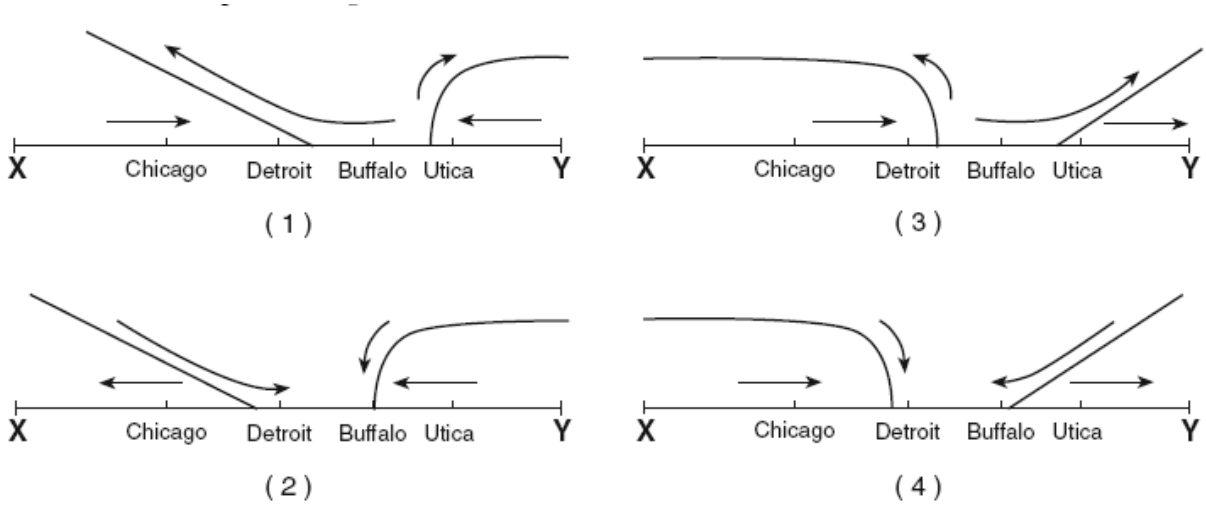
?

159 Which type of front is located between Buffalo and Detroit?

(1) stationary
(2) warm
(3) occluded
(4) cold

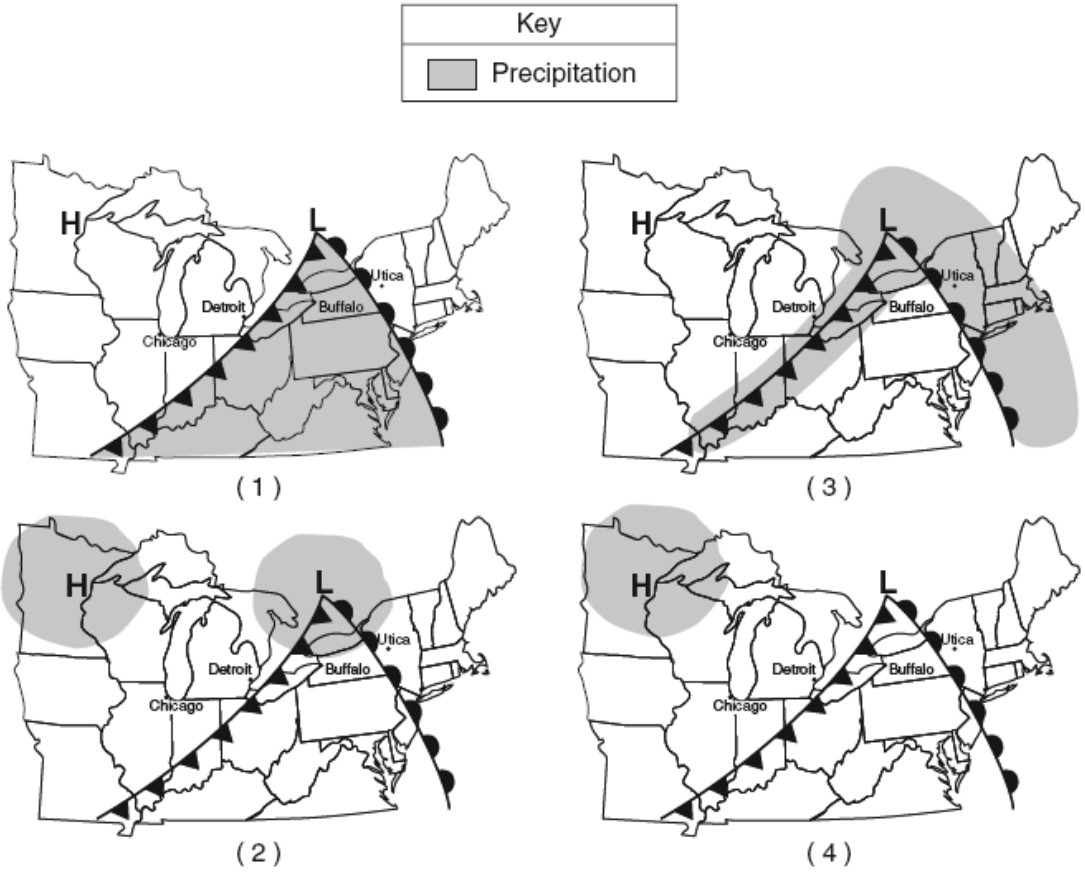
?

160 Which cross section best represents the fronts and air movements in the lower atmosphere along line *XY*?

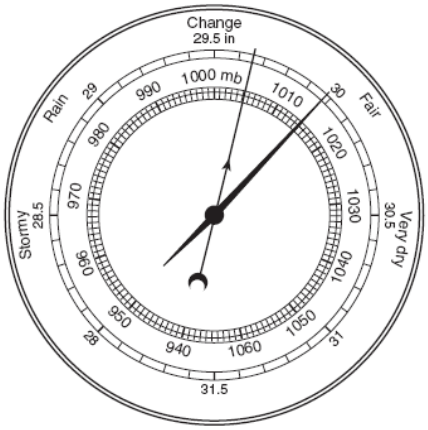


?

161 Which map best shows the most probable areas of precipitation associated with these weather systems?



A weather instrument is shown below.

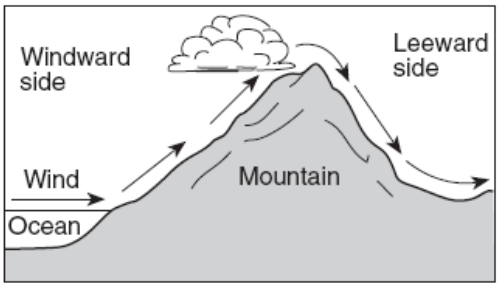


?

162 Which weather variable is measured by this instrument?

(1) wind speed
(2) precipitation
(3) cloud cover
(4) air pressure

The diagram below shows how prevailing winds cause different weather conditions on the windward and leeward sides of a mountain range.



163 Clouds usually form on the windward sides of mountains because this is where air

?

(1) rises and cools
(2) rises and warms
(3) sinks and cools
(4) sinks and warms

164 Which type of air mass is associated with warm, dry atmospheric conditions?

(1) cP (3) mP
(2) cT (4) mT

165 Earth's surface winds generally blow from regions of higher

(1) air temperature toward regions of lower air temperature

(2) air pressure toward regions of lower air pressure

(3) latitudes toward regions of lower latitudes

(4) elevations toward regions of lower elevations

166 What is the relative humidity if the dry-bulb temperature is 22°C and the wet-bulb temperature is 17°C?

(1) 5% (3) 60%
(2) 14% (4) 68%

167 Most of the solar radiation absorbed by Earth's surface is later radiated back into space as which type of electromagnetic radiation?

(1) x ray (3) infrared
(2) ultraviolet (4) radio wave

168 In the United States, most tornadoes are classified as intense

(1) low-pressure funnel clouds that spin clockwise

(2) low-pressure funnel clouds that spin counterclockwise

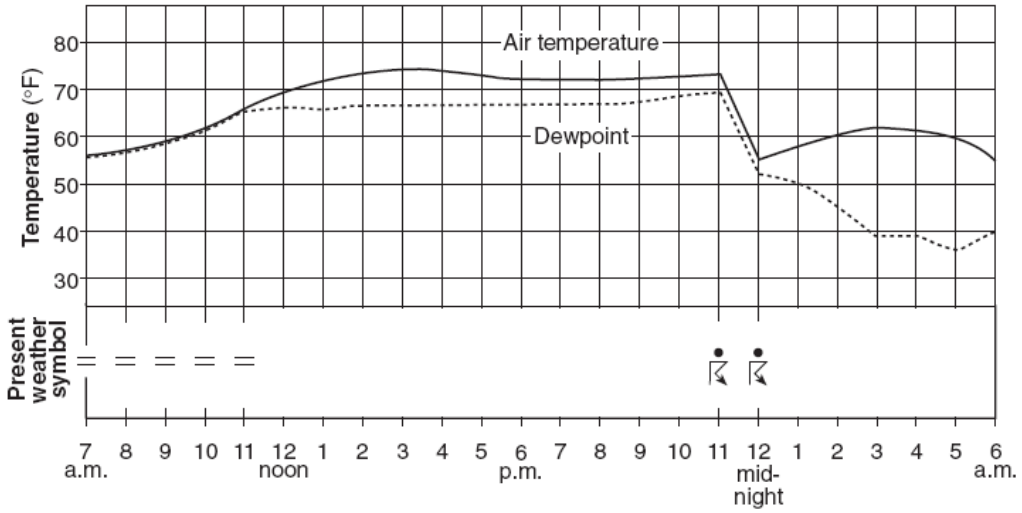
(3) high-pressure funnel clouds that spin clockwise

(4) high-pressure funnel clouds that spin counterclockwise

169 A parcel of air has a dry-bulb temperature of 24°C and a relative humidity of 55%. What is the dewpoint of this parcel of air?

(1) 6°C (3) 24°C
(2) 14°C (4) 29°C

Base your answers to questions 170 and 171 on the graph below, which shows air temperature, dewpoint, and present weather conditions for a 23-hour period at Dallas, Texas.



?

170 The thunderstorm that occurred between 11 p.m. and 12 midnight was most likely the result of

(1) the arrival of a warm front
(2) the arrival of a cold front
(3) an increase in the difference between air temperature and dewpoint
(4) an increase in both air temperature and dewpoint

?

171 Which weather condition was reported at Dallas when the air temperature was equal to the dewpoint?

(1) fog
(2) rain
(3) thunderstorm
(4) drizzle

The diagram below represents an aneroid barometer that shows the air pressure, in inches of mercury.

?

172 When converted to millibars, this air pressure is equal to

(1) 1009.0 mb
(2) 1012.5 mb
(3) 1015.5 mb
(4) 1029.9 mb

?

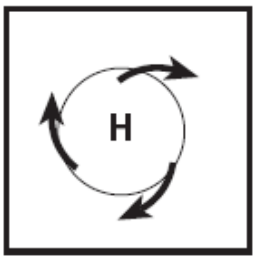
173 What is the relative humidity when the air temperature is 29°C and the wet-bulb temperature is 23°C?

(1) 6%
(2) 20%
(3) 54%
(4) 60%

?

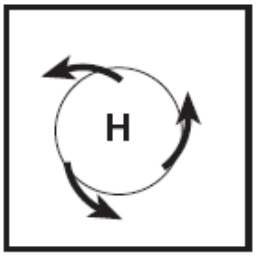
174 Which map best represents the surface wind pattern around a Northern Hemisphere high pressure center?

(1)



(3)

(2)



(4)

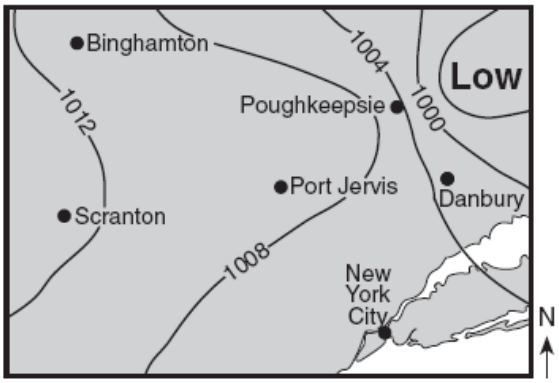
?

175 Which process transfers energy primarily by electromagnetic waves?

(1) radiation
(2) evaporation
(3) conduction
(4) convection

?

Base your answers to questions 176 and 177 on the weather map below, which shows a low-pressure system centered near Poughkeepsie, New York. Isobars shown are measured in millibars.



?

176 Which city is most likely experiencing winds of the greatest velocity?

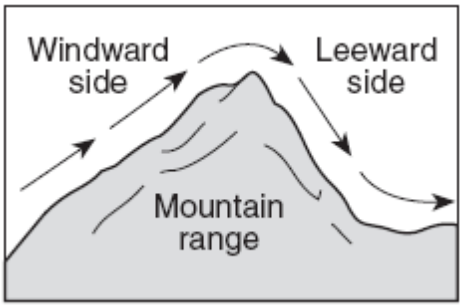
(1) New York City
(2) Binghamton
(3) Poughkeepsie
(4) Scranton

?

177 Surface winds are most likely blowing from

(1) Danbury toward New York City
(2) Poughkeepsie toward Scranton
(3) Binghamton toward Danbury
(4) Port Jervis toward Binghamton

The diagram below shows wind flowing over a mountain range.

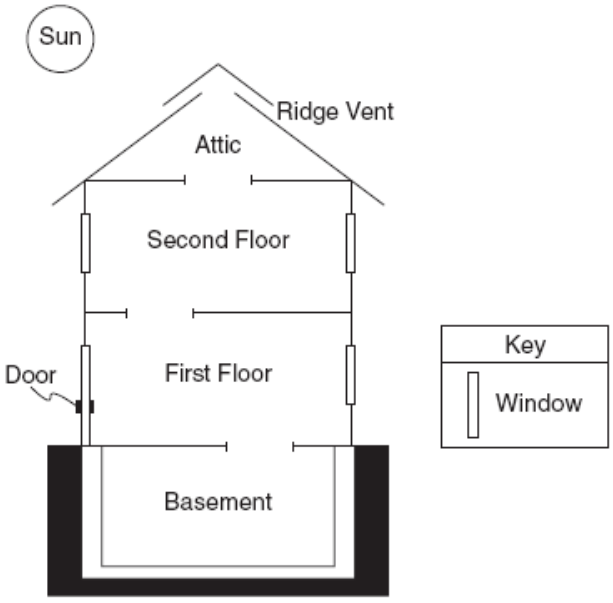


178 As the wind flows down the leeward side of the mountain range, the air becomes

?

(1) cooler and drier
(2) cooler and wetter
(3) warmer and drier
(4) warmer and wetter

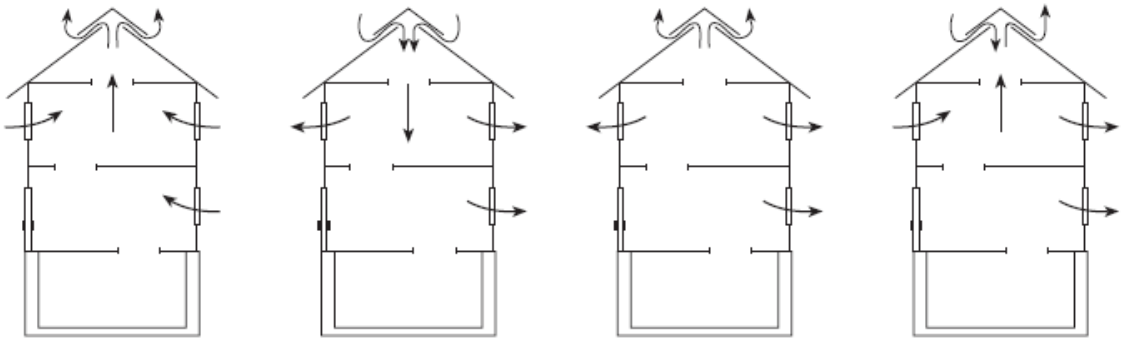
The cross section of a house is shown below. Open stairways allow air to move from one floor to another. The ridge vent is an opening in the roof that allows air to move in or out of the attic.



(Not drawn to scale)

?

179 During a windless summer day, the air inside this house is warmed by the Sun. In which cross section do the arrows show the most likely air movement when the windows are opened?



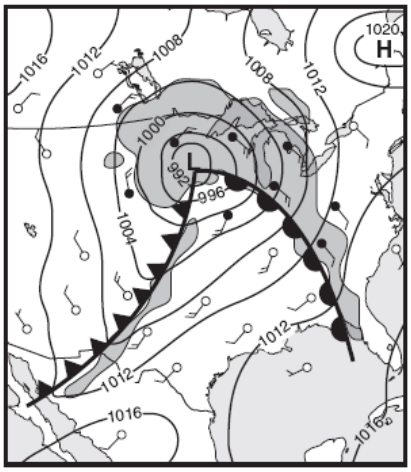
180 The surface winds in a typical Northern Hemisphere high-pressure system are generally moving

(1) counterclockwise away from the high-pressure center
(2) counterclockwise toward the high-pressure
center
(3) clockwise away from the high-pressure center
(4) clockwise toward the high-pressure center

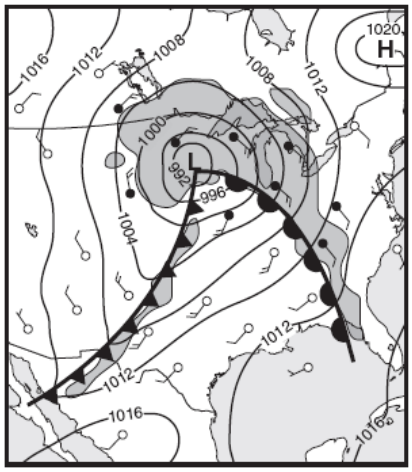
181 A person in New York State worked outdoors in sunlight for several hours on a day in July. Which type of clothing should the person have worn to absorb the *least* electromagnetic radiation?

(1) dark colored with a rough surface
(2) dark colored with a smooth surface
(3) light colored with a rough surface
(4) light colored with a smooth surface

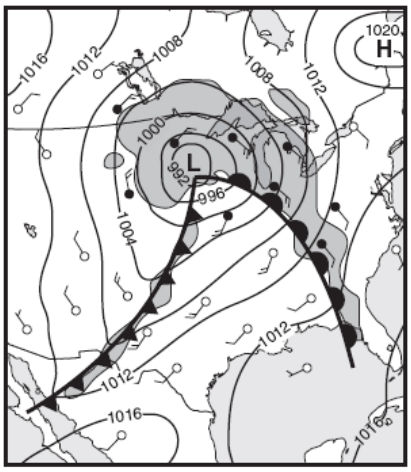
182 On which weather map do the front symbols best represent the direction of movement of the cold front and warm front associated with the low-pressure system shown on the map?



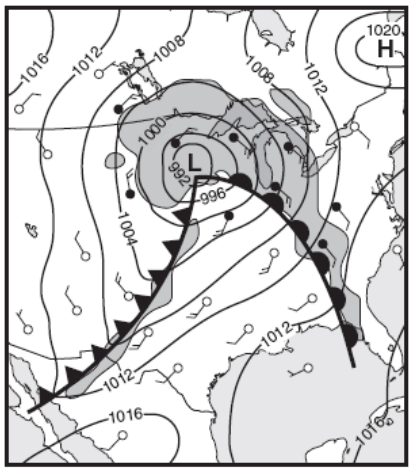
(1)



(3)

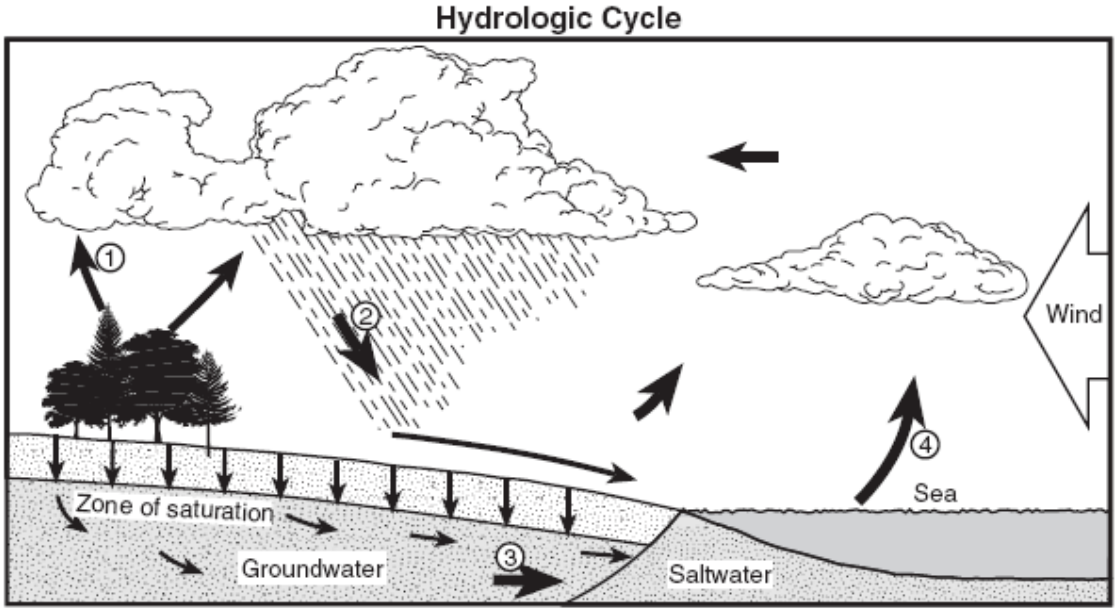


(2)



(4)

Base your answers to questions 183 through 186 on the water cycle diagram shown below. Some arrows are numbered 1 through 4 and represent various processes.



?

183 Which numbered arrow best represents the process of transpiration?

(1) 1 (3) 3
(2) 2 (4) 4

?

184 The clouds have formed primarily because moist air

(1) rises, expands, and cools (3) sinks, compresses, and cools
(2) rises, expands, and warms (4) sinks, compresses, and warms

?

185 For infiltration to occur, the ground must be

(1) permeable and saturated (3) impermeable and saturated
(2) permeable and not saturated (4) impermeable and not saturated

?

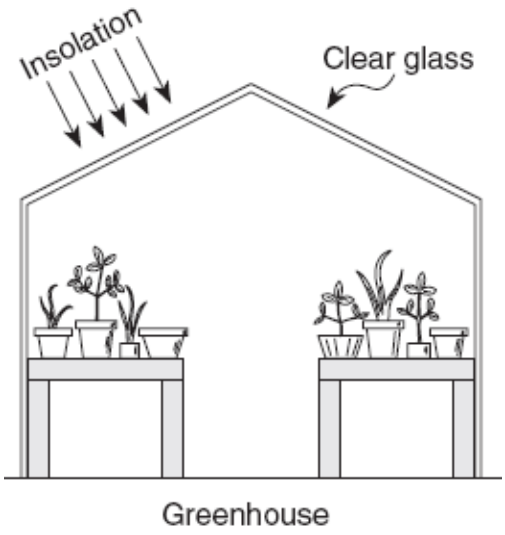
186 Which atmospheric condition is most likely responsible for the wind blowing the clouds from the sea toward the land?

(1) high air temperature over the sea and low air temperature over the land
(2) high air pressure over the sea and low air pressure over the land
(3) low air density over the sea and high air density over the land
(4) low visibility over the sea and high visibility over the land

187 Which weather change is most likely indicated by rapidly falling air pressure?

(1) Humidity is decreasing.
(2) Temperature is decreasing.
(3) Skies are clearing.
(4) A storm is approaching.

188 The diagram below shows a greenhouse. What is the primary function of the clear glass of the greenhouse?



(1) The glass reduces the amount of insolation entering the greenhouse.

(2) The glass allows all wavelengths of radiation to enter and all wavelengths of radiation to escape.

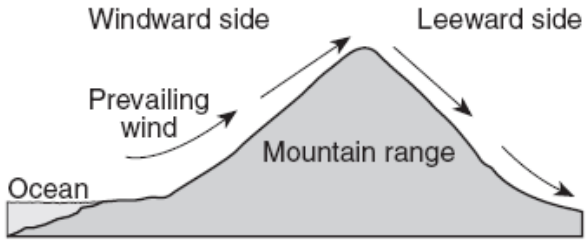
(3) The glass allows short wavelengths of radiation to enter, but reduces the amount of long wavelength radiation that escapes.

(4) The glass allows long wavelengths of radiation to enter, but reduces the amount of short wavelength radiation that escapes.

189 The California Ocean Current, which flows along the west coast of North America, is a

(1) cool current, flowing north
(2) cool current, flowing south
(3) warm current, flowing north
(4) warm current, flowing south

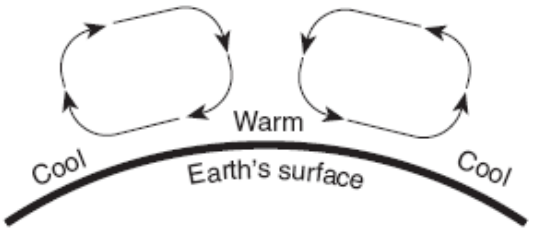
The cross section below shows the prevailing winds that cause different climates on the windward and leeward sides of this mountain range.



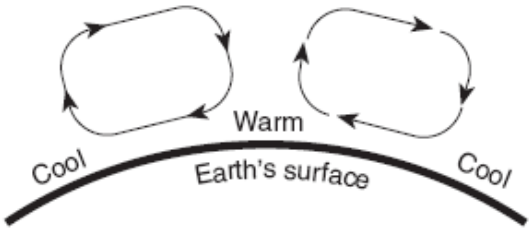
190 Compared to the climate conditions on the leeward side of this mountain range, the conditions on the windward side are usually

(1) cooler and wetter
(2) cooler and drier
(3) warmer and wetter
(4) warmer and drier

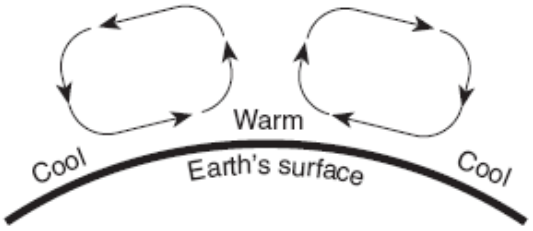
191 The cross sections below show different patterns of air movement in Earth's atmosphere. Air temperatures at Earth's surface are indicated in each cross section. Which cross section shows the most likely pattern of air movement in Earth's atmosphere that would result from the surface air temperatures shown?



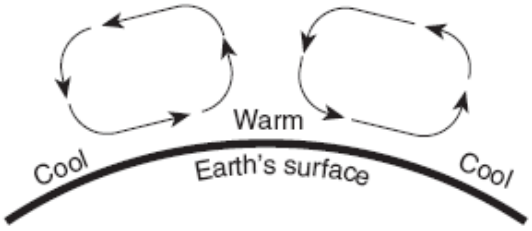
(1)



(3)



(2)



(4)

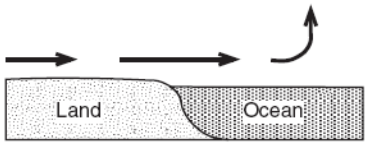
192 What is the dewpoint temperature when the dry-bulb temperature is 12°C and the wet-bulb temperature is 4°C?

(1) –9°C (3) 8°C
(2) 19°C (4) 4°C

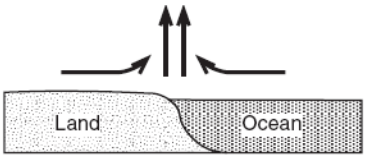
193 An air mass classified as mP usually forms over which type of Earth surface?

(1) warm land (3) cool land
(2) warm ocean (4) cool ocean

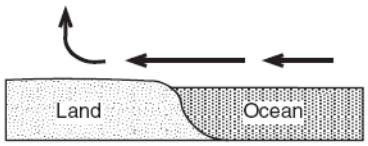
194 Adjacent land and ocean surfaces have the same temperature at sunrise on a clear, calm, summer day. Then the land and water are heated by the Sun for several hours. Which cross section shows the most likely direction of surface winds that will develop at this ocean shore?



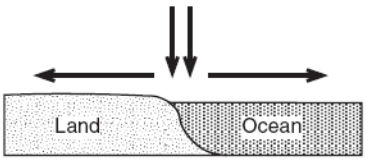
(1)



(3)



(2)



(4)

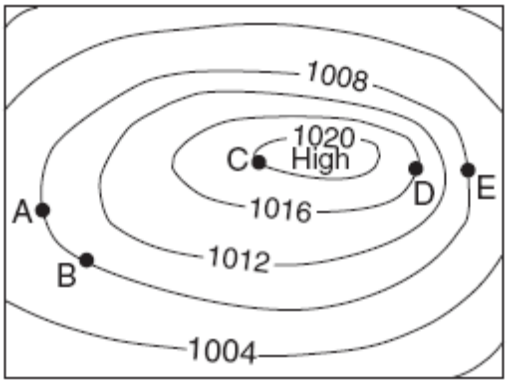
195 Surface ocean currents located at 40º south latitude, 90° west longitude generally flow toward the

(1) northeast (3) southwest
(2) southeast (4) west

197 On a certain day, the isobars on a weather map are very close together over eastern New York State. To make the people of this area aware of possible risk to life and property in this situation, the National Weather Service should issue

(1) a dense-fog warning
(2) a high-wind advisory
(3) a heat-index warning
(4) an air-pollution advisory

The air-pressure field map below represents a high-pressure system over the central United States. Isobars show the air pressure, in millibars. Letters *A* through *E* represent locations on Earth's surface.



196 Between which two locations is the wind speed greatest?

(1) *A* and *B* (3) *C* and *D*
(2) *B* and *C* (4) *D* and *E*

198 What is the dewpoint temperature when the dry-bulb temperature is 16°C and the wet-bulb temperature is 11°C?

(1) 5°C (3) 9°C
(2) 7°C (4) –17°C

199 Most water vapor enters Earth's atmosphere by the processes of

(1) condensation and precipitation
(2) radiation and cementation
(3) conduction and convection
(4) evaporation and transpiration

200 Weather along most fronts is usually cloudy with precipitation because the warm air along most fronts is usually

(1) sinking and cooling, causing water to evaporate
(2) sinking and warming, causing water to evaporate
(3) rising and cooling, causing water vapor to condense
(4) rising and warming, causing water vapor to condense

Base your answers to questions 202 through 203 on the weather map below, which shows air temperature and winds for a few locations in the eastern half of the United States. A large low-pressure system is shown on the map.

201 Surface winds within this low-pressure system generally flow

(1) clockwise and toward the center of the system
(2) clockwise and away from the center of the system
(3) counterclockwise and toward the center of the system
(4) counterclockwise and away from the center of the system

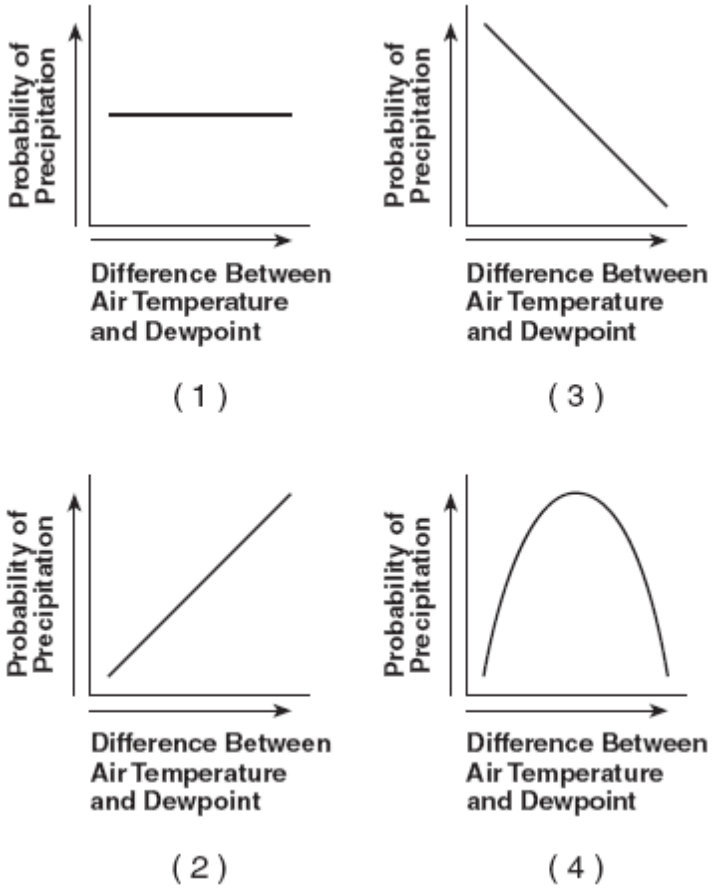
202 Which type of front extends eastward from the low-pressure center?

(1) cold (3) occluded
(2) warm (4) stationary

203 If the low-pressure center follows a typical storm track, it will move toward the

(1) southwest (3) northwest
(2) southeast (4) northeast

204 Which graph best shows the relationship between the probability of precipitation and the difference between air temperature and dewpoint?



205 The Canaries Current along the west coast of Africa and the Peru Current along the west coast of South America are both

(1) warm currents that flow away from the Equator

(2) warm currents that flow toward the Equator

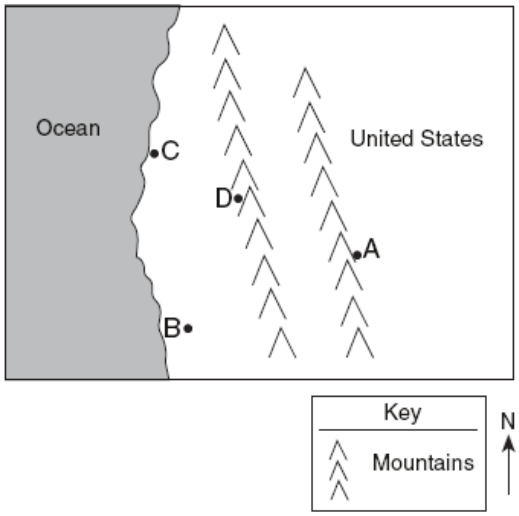
(3) cool currents that flow away from the Equator

(4) cool currents that flow toward the Equator

206 During which phase change of water is the most energy released into the environment?

(1) water freezing
(2) ice melting
(3) water evaporating
(4) water vapor condensing

The map below shows the location of four cities, *A, B, C,* and *D,* in the western United States where prevailing winds are from the southwest.

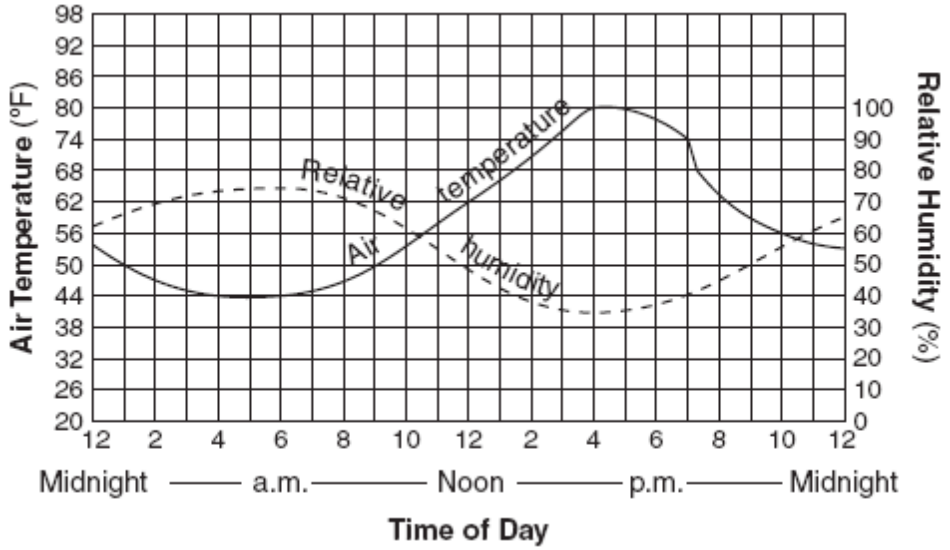


?

207 Which city most likely receives the *least* amount of average yearly precipitation?

(1) *A*
(2) *B*
(3) *C*
(4) *D*

Base your answers to questions 208 and 209 on the graph below. The graph shows air temperature and relative humidity at a single location during a 24-hour period.



208 What was the approximate change in relative humidity from 12 noon to 4 p.m.?

(1) 10%
(2) 15%
(3) 20%
(4) 30%

209 At which time would the rate of evaporation most likely be greatest?

(1) 11 p.m.
(2) 6 a.m.
(3) 10 a.m.
(4) 4 p.m.

210 Surface ocean currents curve to the right in the Northern Hemisphere because

(1) the Moon spins on its axis
(2) the Moon travels in an orbit around Earth
(3) Earth spins on its axis
(4) Earth travels in an orbit around the Sun