

Atmosphere & Weather Practice Test

Name: _____

Date: _____

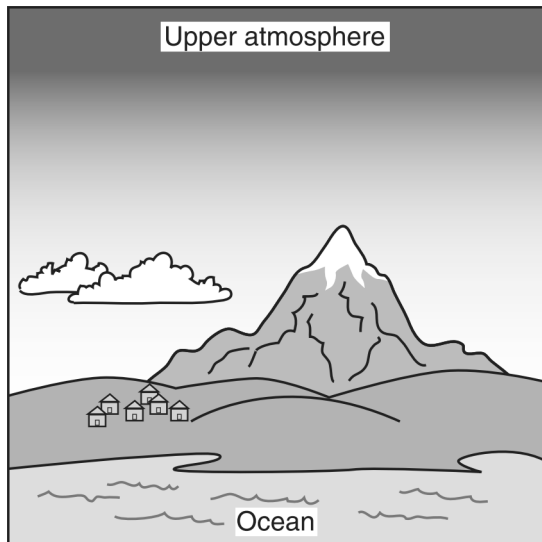
* Test on Friday March 13th

* Study homework pages from weeks, 5/6, 7 and 8 as well as atmosphere lab, weather data lab and other returned assignments

*Copy of class notes & homework pages at: <http://feldmannscience.weebly.com>

*Turn in completed practice test on the day of the test to receive extra credit points

1. The diagram below shows a landscape.



Where in the diagram would the air pressure be the greatest?

- A. at the beach
 - B. on top of the mountain
 - C. at the bottom of the clouds
 - D. above Earth's atmosphere
2. Which tool should be used to measure the amount of water vapor in the air?
- A. Anemometer
 - B. Barometer
 - C. Hygrometer
 - D. Thermometer

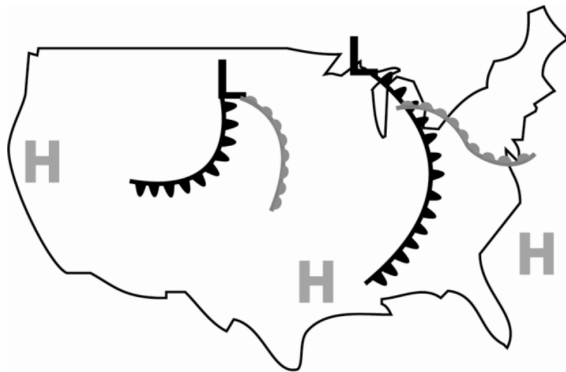
3. During the summer in Maine, fog sometimes forms. Fog is *best* described as
- A. ice crystals.
 - B. rain.
 - C. snow.
 - D. water droplets.
4. During most of the year, the air over Boston, Massachusetts, contains a high amount of moisture. Which of the following *best* explains why there is a high amount of moisture in the air?
- A. Boston is close to an ocean.
 - B. Boston is at a low elevation.
 - C. Boston is near many mountains.
 - D. Boston is far north of the equator.
5. Which *best* describes a characteristic of the jet stream?
- A. It forms a boundary between a cold air mass and a warm air mass.
 - B. It creates the high winds around the eye of a hurricane.
 - C. It forces the hot air along the equator to rise to areas in North America.
 - D. It causes high pressure air masses to rotate clockwise.
6. A weather map shows closely spaced isobar lines over an area.
- a) What do the isobar lines represent?
 - b) What do the closely spaced isobars indicate about the weather in the area?

7. A weather balloon with a 2-meter diameter at ambient temperature holds 525 grams of helium. What type of electronic probe could be used to determine the pressure inside the balloon?

- A. barometric
- B. thermometric
- C. calorimetric
- D. spectrophotometric

8. Use the weather map below to help you answer the following question .

Weather Map



Which symbol on the map shows a cold front?

- A. H
- B. L

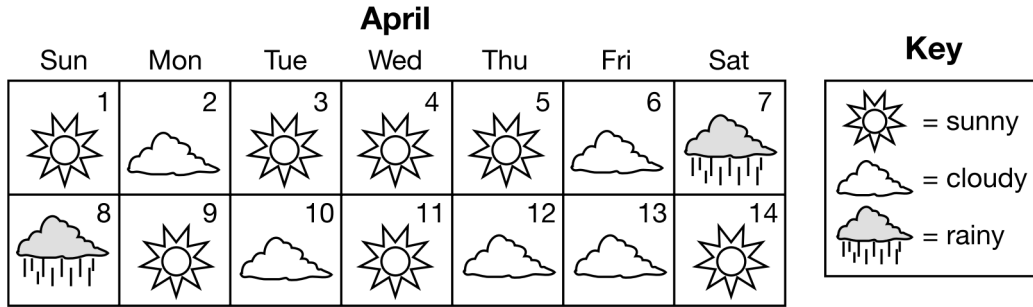
- C. 
- D. 

9. A weather satellite can take a picture of a hurricane from space and send it to Earth in seconds.

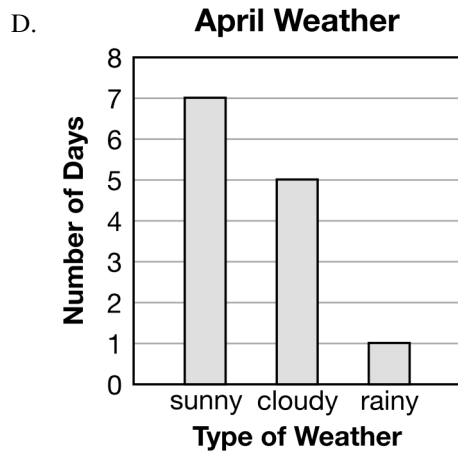
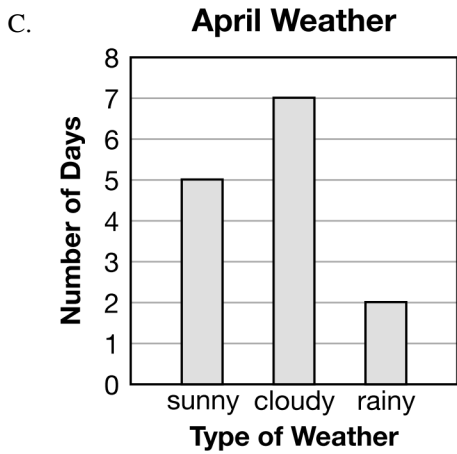
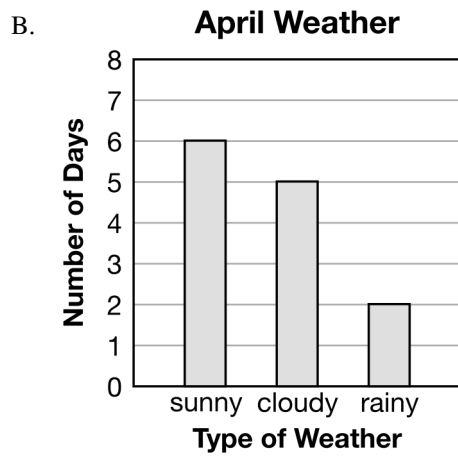
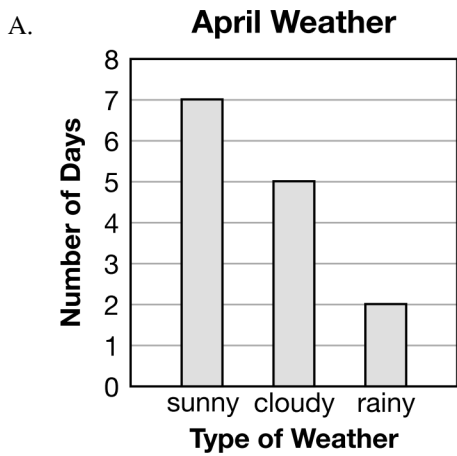
How would the people of Hawaii benefit by having a picture of a hurricane so quickly?

- A. The picture can change the direction of the hurricane.
 - B. People will know how long the hurricane will last.
 - C. The effect of the hurricane on the beach will be changed.
 - D. People can be warned about the approaching hurricane.
10. The properties of an air mass are mostly determined by the
- A. rate of Earth's rotation
 - B. direction of Earth's surface winds
 - C. source region where the air mass formed
 - D. path the air mass follows along a land surface
11. Which has the *greatest* effect on wind speed?
- A. precipitation
 - B. cloud cover
 - C. wind direction
 - D. air pressure
12. Which is the *best* explanation for how air masses move across the United States?
- A. The prevailing westerlies move air masses from west to east across the United States but may be deflected by the jet stream.
 - B. The trade winds move air masses from west to east across the United States.
 - C. The jet stream moves air masses from the Pacific Ocean across the United States.
 - D. The warm air of the Gulf Stream causes air masses to move from the Atlantic Ocean to the Pacific Ocean.

13. Use the calendar below to answer the question.



Students recorded daily weather conditions on a calendar for the first two weeks of April. Which graph best shows the weather conditions recorded by the students?



14. The Coriolis effect is a result of Earth's
- | | |
|----------------|------------------|
| A. tilted axis | B. orbital shape |
| C. revolution | D. rotation |

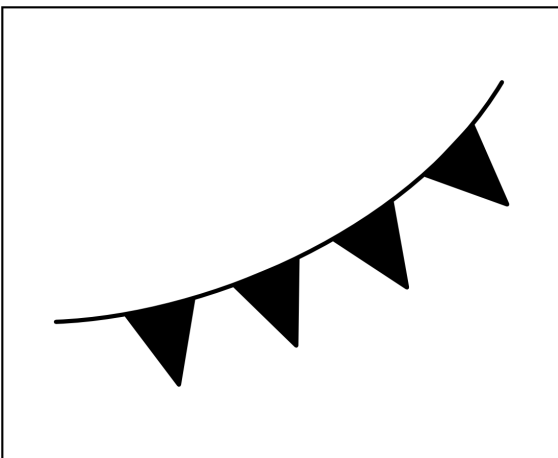
15. Jet stream winds over the United States generally move from
- | | |
|-------------------|-------------------|
| A. east to west | B. west to east |
| C. north to south | D. south to north |

16. Assuming the low-pressure center (L) follows a typical storm track, it will move
- into the mT air mass to the west
 - into the cP air mass to the northwest
 - along the path of the jet stream to the northeast
 - along the path of the jet stream to the southwest

17. On a cold, cloudy day, the local weather forecaster predicts that a high-pressure system will be moving into the area in the next 24 hours. Which weather conditions will this system *most likely* bring to the area?

- | | |
|-----------|----------|
| A. stormy | B. sunny |
| C. snowy | D. hot |

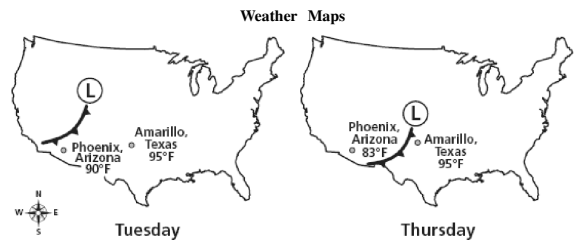
18. Consider this weather symbol:



- What does this weather symbol represent?
- If this symbol is over a particular area on a weather map, which type of weather conditions are *most likely* occurring in the area?

19. Which type of weather is indicated by closely spaced isobars on a weather map?
- | | |
|--------------------|-----------------|
| A. calm conditions | B. strong winds |
| C. thick clouds | D. clear skies |

20. The following maps show a front as it moves east across the United States.



| Key | |
|-----|----------------|
| (L) | = low pressure |
| ▲ | = front |

Which of these describes the weather change that can be expected for Amarillo, Texas?

- The cold front will bring cooler temperatures and snow.
 - The cold front will bring cooler temperatures with thunderstorms and rain.
 - The warm front will bring warmer temperatures with hot air for several days.
 - The warm front will bring warmer temperatures with light rain for a few days.
21. According to scientists, which of the following material categories is thought to be the primary cause for the depletion of the ozone layer?
- chlorofluorocarbons
 - coal-containing sulfur
 - fossil fuels
 - hydrocarbons
22. Which tool is used to determine precipitation amounts?
- | | |
|------------------|----------------|
| A. balance scale | B. hygrometer |
| C. rain gauge | D. thermometer |

23. 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?

- A. anemometer and psychrometer
- B. anemometer and barometer
- C. thermometer and psychrometer
- D. thermometer and barometer

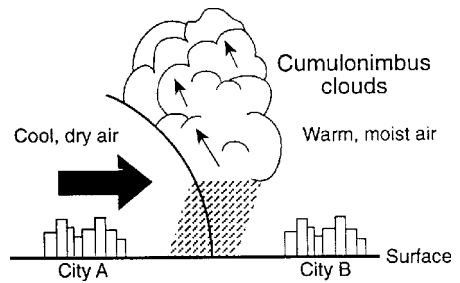
24. Which list correctly matches each instrument with the weather variable it measures?

- A. wind vane—wind
speed thermometer—temperature
precipitation gauge—relative humidity
- B. wind vane—wind direction
thermometer—dewpoint
psychrometer—air pressure
- C. barometer—relative humidity
anemometer—cloud cover
precipitation gauge—probability of precipitation
- D. barometer—air pressure
anemometer—wind speed
psychrometer—relative humidity

25. What is the difference in the air temperature and humidity between the cP and mT air masses?

- A. The cP air mass is warmer and less humid.
- B. The cP air mass is colder and more humid.
- C. The mT air mass is warmer and more humid.
- D. The mT air mass is colder and less humid.

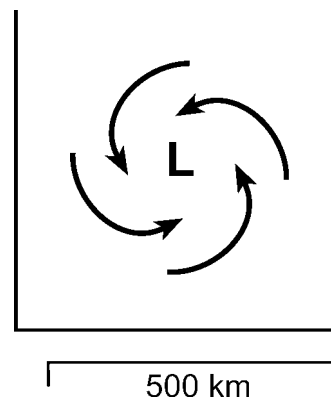
26. The cross section below shows a weather front. The large arrow shows the direction of the movement of the cool air mass.



Which type of weather front is shown?

- A. warm front
- B. cold front
- C. occluded front
- D. stationary front

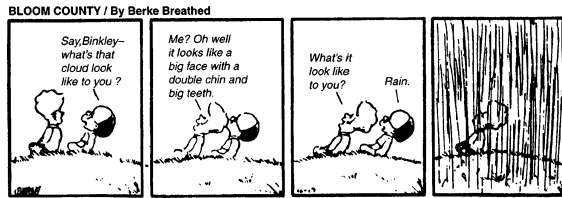
27. A map view of surface air movement in a low-pressure system is shown.



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

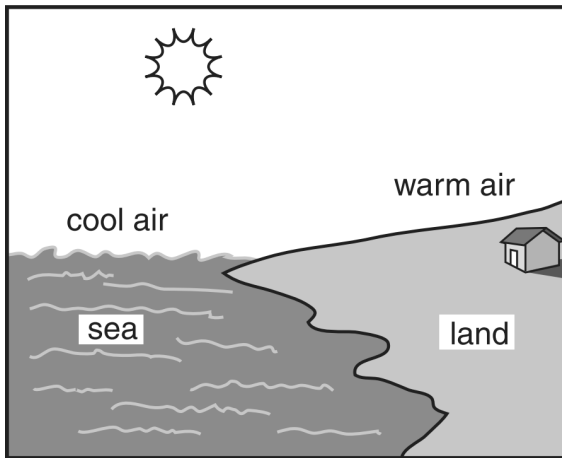
- A. evaporate into a liquid
- B. reverse direction
- C. rise and form clouds
- D. squeeze together to form a high-pressure system

28. The accompanying cartoon shows a humorous view of a weather phenomenon.



Rain fell from the clouds because

- A. too few condensation nuclei were in the cloud
- B. the cloud's water droplets combined and became large enough to fall
- C. evaporation in the upper portion of the cloud caused the cloud to become smaller and "squeezed" water out
- D. the temperature in the cloud rose above the dewpoint
29. The picture below shows a place where air currents will form due to the uneven heating of Earth.



In which direction will air currents *most* likely move?

- A. straight down over the land
- B. from the land toward the sea
- C. straight up above the sea
- D. from the sea toward the land
30. Which of these effects generally occurs as the result of a warm air mass and a cooler air mass converging at Earth's surface?
- A. The sky becomes clear.
- B. Winds die down.
- C. Cloud formation decreases.
- D. Stormy weather patterns develop.
31. What is the primary energy source that drives all weather events, including precipitation, hurricanes, and tornados?
- A. the Sun
- B. the Moon
- C. Earth's gravity
- D. Earth's rotation
32. The table below shows some temperature and precipitation reports for Bangor, Maine.

Weather in Bangor, Maine

| Date | Low Temperature ($^{\circ}$ C) | Precipitation (cm) |
|------------|---------------------------------|--------------------|
| January 4 | 2 | 0.0 |
| January 6 | 10 | 1.9 |
| January 15 | -7 | 12.7 |
| January 30 | -15 | 0.0 |

- On which day did rain fall?
- A. January 4
- B. January 6
- C. January 15
- D. January 30
33. Which *best* describes how air pressure can be affected on hot summer days?
- A. The air expands and becomes less dense, creating areas of low pressure.
- B. The air expands and becomes less dense, creating areas of high pressure.
- C. The air expands and becomes more dense, creating areas of low pressure.
- D. The air expands and becomes more dense, creating areas of high pressure.

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- | | |
|---|-----------------------|
| 1. Answer: A | 20. Answer: B |
| 2. Answer: C | 21. Answer: A |
| 3. Answer: D | 22. Answer: C |
| 4. Answer: A | 23. Answer: D |
| 5. Answer: A | 24. Answer: D |
| 6. Answer: – Explains what isobar lines represent – provides an accurate description of the weather associated with closely spaced isobars | 25. Answer: C |
| 7. Answer: A | 26. Answer: B |
| 8. Answer: C | 27. Answer: C |
| 9. Answer: D | 28. Answer: B |
| 10. Answer: C | 29. Answer: D |
| 11. Answer: D | 30. Answer: D |
| 12. Answer: A | 31. Answer: A |
| 13. Answer: A | 32. Answer: B |
| 14. Answer: D | 33. Answer: A |
| 15. Answer: B | |
| 16. Answer: C | |
| 17. Answer: B | |
| 18. Answer: | |
| 19. Answer: B | |