

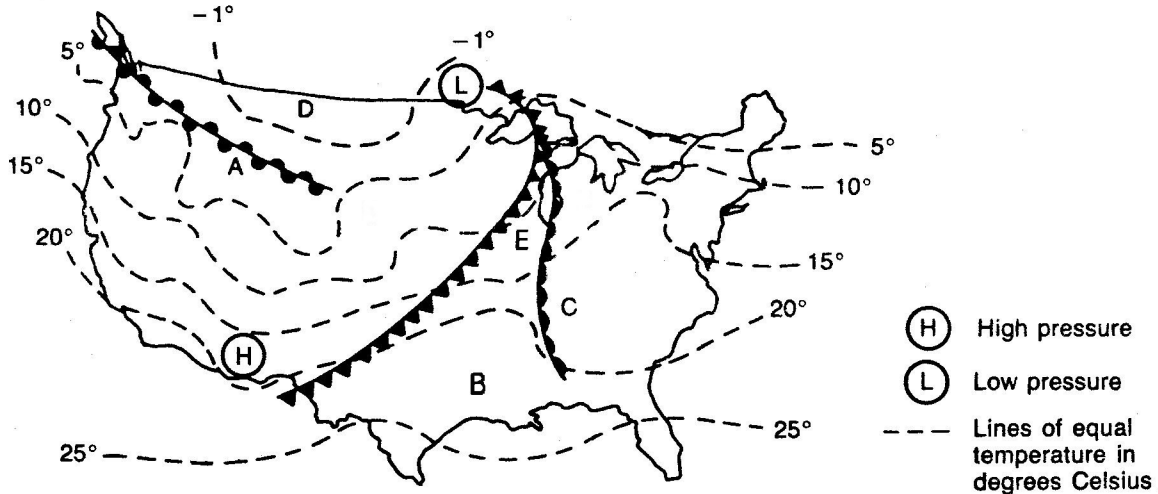
Weather and Climate Test

- Unequal heating of the Earth causes:
a) radiation currents b) convection currents c) precipitation d) evaporation
- Radiant energy from the sun strikes the Earth at different angles, causing uneven heating of the Earth's surface. The area that receives the most direct sunlight is the:
a) Southwestern US b) 30°N Latitude c) equator d) Australia
- The amount of water vapor in the air is called:
a) humidity b) dew point c) precipitation d) fog
- Large bodies of air with the same temperature and humidity throughout are called:
a) isobars b) air masses c) isotherms d) air fronts
- Curved lines connecting locations on a weather map that have the same barometric pressure are called:
a) isotherms b) isobars c) anticyclones d) cyclones
- Which of the following is NOT a manner in which air is lifted?
a) Convection current lifting b) Orographic lifting (caused by a mountain)
c) Frontal lifting d) Stratospheric Lifting
- When air temperature drops, the air's ability to contain water vapor is:
a) Slightly higher b) much higher c) lower d) about the same
- When a moving warm air mass encounters a mountain range, it:
a) Stops moving c) rises and cools
b) Slows and sinks d) rises and warms
- Winds always blow from an area of _____ pressure.
a) Hi to low b) Low to high c) Same to same d) wet to dry
- When air is saturated, its relative humidity is:
a) 0% b) 1% c) 10% d) 100 %
- If an air mass can hold a maximum of 15 grams per cubic meter at a certain temperature, and actually contains 5 grams of water, the relative humidity of the air mass is about:
a) 5 % b) 33 % c) 50 % d) 67 %
- The direction in which the wind moves is influenced by:
a) the pressure gradient (high to low) c) Earth's rotation
b) both a and b d) neither a nor b
- What front is formed when a warm air mass moves over a cold air mass?
a) a cold front b) a warm front c) an occluded front d) a stationary front
- What front is formed when a mass of cold air slides under a warm air mass?
a) a cold front b) a warm front c) an occluded front d) a stationary front

15. The Coriolis Effect is due to the _____ of the Earth.
 a) rotation b) temperature d) humidity e) gravity
16. The Coriolis Effect causes the trade winds in the northern hemisphere near the equator to curve :
 a) to the West at the equator c) directly south
 b) directly North d) to the East at the equator
17. Light to moderate rain (precipitation) forms at a warm front when:
 a) cold air is gently lifted over warm air c) cold air is violently lifted over warm air
 b) Warm air is gently lifted over cold air d) warm air is violently lifted over cold air
18. Air pressure is influenced by which of the following?
 a) temperature b) water vapor (humidity) c) altitude d) all of the above
19. The winds used by early explorers traveling West from Europe to the Americas were:
 a) prevailing Westerlies c) Polar Easterlies
 b) doldrums d) Trade Winds
20. A belt of air around the equator gets the most direct rays of the sun and produces:
 a) low pressure b) medium pressure c) high pressure d) extreme pressure
21. The instrument used to measure relative humidity is a:
 a) thermometer b) barometer c) anemometer d) psychrometer
22. Which air mass is the source of cold wet storms in the USA?
 a) maritime polar c) maritime tropical
 b) continental polar d) continental tropical
23. The lifting of air over a barrier such as a mountain is:
 a) convectional lifting c) frontal lifting
 b) orographic lifting d) gravitational lifting
24. Whenever water condenses (gas to a liquid) or freezes (liquid to solid)
 a) heat is absorbed c) heat is released
 b) frost forms d) the temperature drops
25. What is the strong air current called that brings weather to the USA from the Pacific Ocean:
 a) Gulf Stream c) Jet Stream
 b) Polar Easterlies d) Trade Winds
26. Tornadoes commonly occur in which of the following regions of the United States?
 a. Great Plains region c. Northeast
 b. Western States d. Southeast
27. How has global climate changed over geologic time?
 a. has always been the same c. has varied greatly over time
 b. has varied slightly over time d. depends on the planet Mar's orbit
28. Which natural hazard is expected to influence your life in California the most?
 a) tornadoes b) hurricanes c) earthquakes d) volcanoes

29. Weather forecasts are based on information about:
- a) air mass movements
 - b) high and low pressure areas
 - c) fronts
 - d) all of the above

Use the picture of the United States to answer the following.



30. At what position is there a cold air mass? (A, B, C, D, or E)
31. At what position is there a stationary front? (A, B, C, D, or E)
32. At what position is there a warm front? (A, B, C, D, or E)
33. At what position is there a warm air mass? (A, B, C, D, or E)
34. At which position will there be heavy storms as warm air is abruptly lifted. (A, B, C, D, or E)

35. Convert 80 degrees F into Celsius using this formula: $C = (F-32) \times 5/9$

- a) 80 C
- b) 27 C
- c) 86 C
- d) 12 C

36. Which unit is **NOT** a measure of air pressure:

- a) millibar
- b) psi
- c) atmospheres
- d) mm of Hg
- e) all of these are pressure units

37. Climate is influenced by:

- a) latitude
- b) elevation/mountain ranges
- c) oceans/nearby water
- d) all of these

38. The four seasons are caused by the

- a) distance between the sun and the Earth
- b) shape of the continents
- c) tilt of the Earth's axis
- d) all of the Above

39. The average meteorological conditions in one place over a period of a year or longer is called:

- a) weather
- b) altitude
- c) climate
- d) synoptic meteorology

40. In the United States, coastal cities have their climates modified by which of the following?

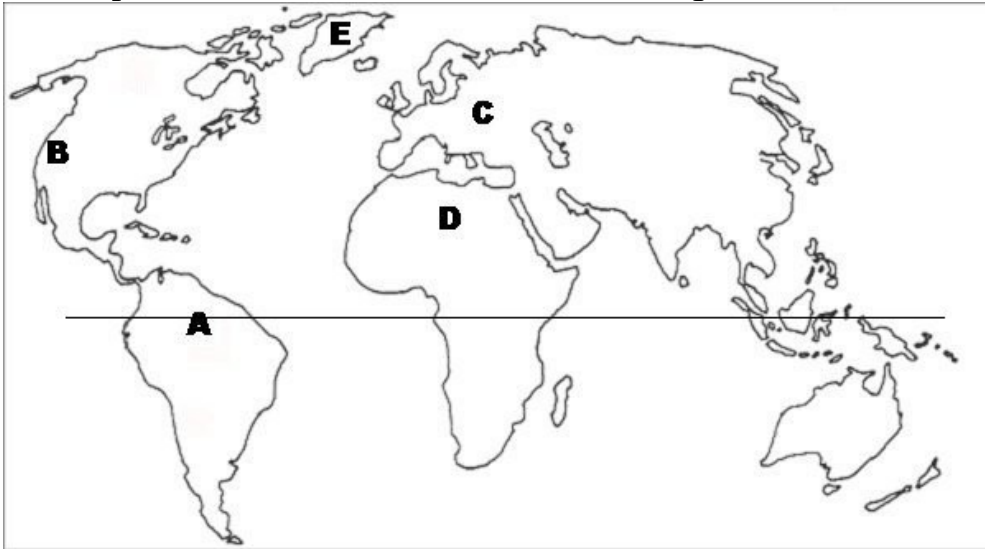
- a) ocean currents
- b) ocean tides
- c) smog
- d) altitude

41. Which type of climate do we experience in the San Francisco Bay Area?

- a) Maritime Temperate
- b) Continental Temperate
- c) Tropical
- d) Mediterranean

42. The climate in the San Francisco Bay Area is characterized by mild and wet winters and:
 a) hot dry summers b) hot humid summers c) cool dry summers d) cool humid summers
43. Which climate zone has the coldest average temperature?
 a) tropical b) polar c) marine d) subtropical
44. Which climate has the highest average temperature?
 a) tropical b) polar c) temperate d) subtropical

Use the picture of the world to answer the following.



Use letters A-E to answer the following questions:

45. The location of the largest rainforest in the World A B C D E
46. A very dry place in the Northern Hemisphere. A B C D E
47. An area experiencing a Mediterranean Climate. A B C D E
48. An area where the average yearly temperature is below freezing A B C D E
49. As temperature increases, the possible total humidity:
- increases
 - decreases
 - increases and then decreases.
 - remains the same.
50. In a high-pressure system:
- air masses are less dense and becoming cooler and moister creating moist cloudy weather.
 - air masses are rising and becoming warmer and drier creating dry clear weather.
 - air masses are sinking and becoming cooler and moister creating moist cloudy weather.
 - air masses are sinking and becoming warmer and drier creating dry clear weather.

51. Warm air rises because of it has:
 a. a lower density than cold air c. a higher density than cold air
 b. the same density as cold air d. a lack of pressure
52. The region where warm and cold air masses meet is called a:
 a. pocket b) cloud c) front d) nimbus
53. Weather forecasts are based on information about:
 a) air mass movements b) fronts c) high and low pressure areas d) all of the above
54. The clouds that occur at the highest altitude are usually:
 a. cirrus b. stratus c. cumulus. d. nimbus
55. The direction in which the wind moves is influenced by:
 a. the pressure gradient b. Earth's rotation c. Humidity d. both a and b
56. High winds and strong thunderstorms are characteristic of an approaching strong
 a. warm front b. cold front c. stationary front d. occluded front
57. Weather variables such as wind speed, cloud cover, & precipitation are indicated on weather maps by
 a. numbers b. colors c. symbols d. all of these
58. The climate of a region is defined by which two variables?
 a. temperature and elevation c. elevation and topography
 b. moisture and topography d. temperature and precipitation
59. Thick, puffy, billowy white clouds are called:
 a. cirrus b. stratus c. cumulus d. nimbus
60. How does the **temperature** of the troposphere change as altitude increases?
 a. increases b. decreases c. remains constant d. decreases and then increases
61. How does the **air pressure** of the troposphere change as altitude increases?
 a. increase b. decrease c. remains constant d. decreases and then increases
62. The air pressure on a cloudy day is (high/low) and the air pressure on a clear day is (high/low):
 a. high, high b. low, low c. high, low d. low, high
63. The (higher /lower) temperature the (faster/slower) the molecules of a gas are moving:
 a. higher, faster b. lower, slower c. higher, slower d. both a and b are correct
64. In general, the (higher/lower) the temperature of a gas, the (higher/lower) the pressure:
 a. higher, higher b. lower, lower c. higher, lower d. both a and b are correct
65. In the case of a balloon, the (higher/lower) the temperature the (greater/smaller) the volume.
 a. higher, greater b. lower, smaller c. higher, smaller d. both a and b are correct
66. Air pressure at sea level is about _____ .
 a. 1000 bars b. 760 mm mercury c. 14.7 PSI d. both b and c are correct
67. A westerly wind blows from _____ to _____ .
 a. west to east b. east to west c. land to sea d. sea to land
68. In California, the winds that blow off the Pacific Ocean are _____ winds.
 a. easterly b. westerly c. continental d. high relative humidity

69. Diagram A is a picture of which type of weather front:

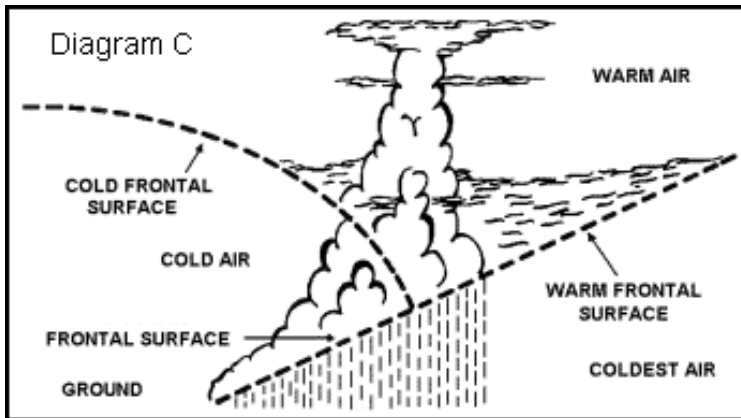
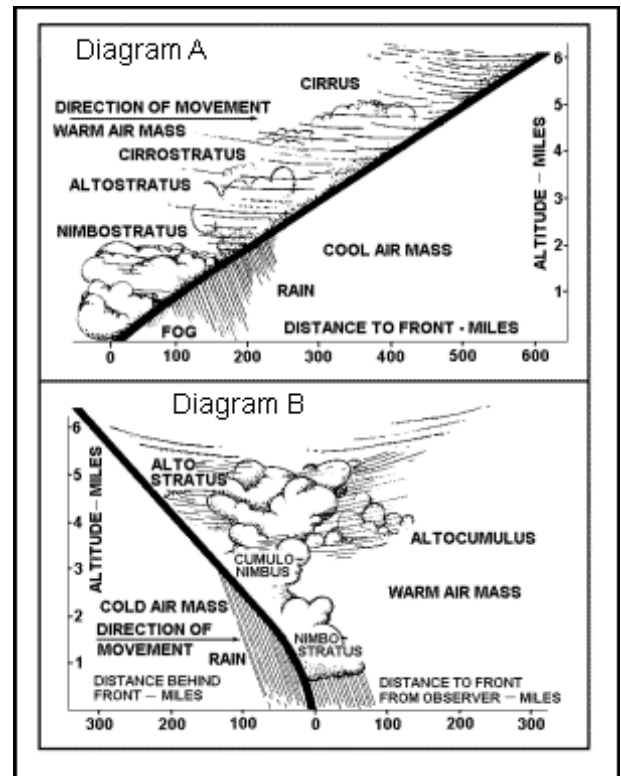
- a) cold b) warm c) stationary d) occluded

70. Diagram B is a picture of which type of weather front:

- a) cold b) warm c) stationary d) occluded

71. Diagram C is a picture of which type of weather front:

- a) cold b) warm c) stationary d) occluded



A “front” is the edge of a bubble of air with a specific temperature, moisture and density.

72. The symbol for a **warm front** is:

- a. b. c. d.

73. The symbol for a **cold front** is:

- a. b. c. d.

74. The symbol for a **stationary front** is:

- a. b. c. d.