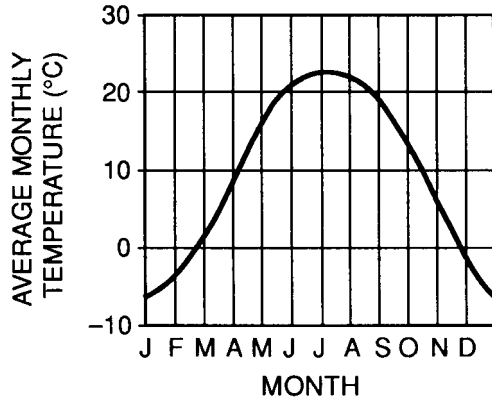


- Which single factor generally has the greatest effect on the climate of an area on the Earth's surface?
 - the distance from the Equator
 - the extent of vegetative cover
 - the degrees of longitude
 - the month of the year
- The graph below represents the average temperature of a city for each month of the year.

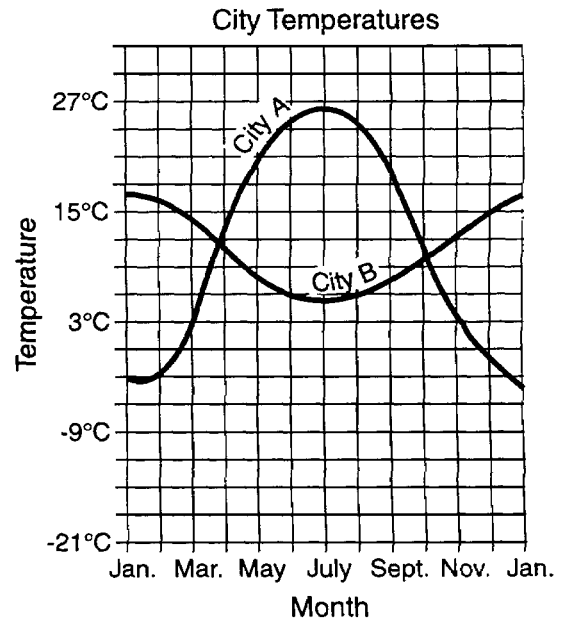


Where is this city most likely located?

- inland in the Northern Hemisphere, in a middle latitude
 - inland in the Southern Hemisphere, in a middle latitude
 - on a coast near the Equator
 - on a coast in the Antarctic
- Compared to a coastal location of the same elevation and latitude, an inland location is likely to have
 - warmer summers and cooler winters
 - warmer summers and warmer winters
 - cooler summers and cooler winters
 - cooler summers and warmer winters
 - Bodies of water have a moderating effect on climate primarily because
 - water gains heat more rapidly than land does
 - water surfaces are flatter than land surfaces
 - water temperatures are always lower than land temperatures
 - water temperatures change more slowly than land temperatures do
 - At which latitudes do currents of dry, sinking air cause the dry conditions of Earth's major deserts?

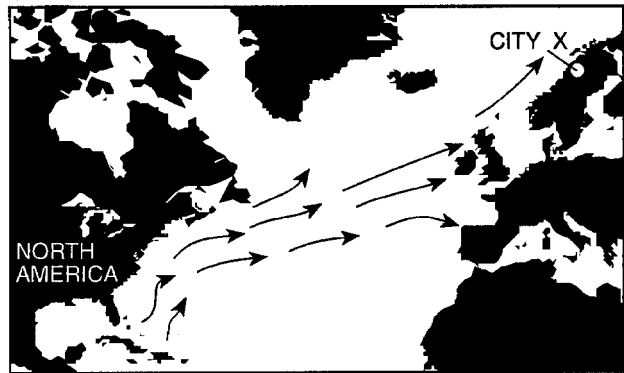
1) 0° and 30° N	3) 30° N and 30° S
2) 60° N and 60° S	4) 60° S and 90° S

- Base your answer to the following question on the graph below, which shows the average monthly temperature of two cities A and B.



The temperature in city B is highest in January and lowest in July because city B is located

- on the side of a mountain
 - on an island
 - in the Southern Hemisphere
 - at the North Pole
- Arrows on the map represent ocean currents.

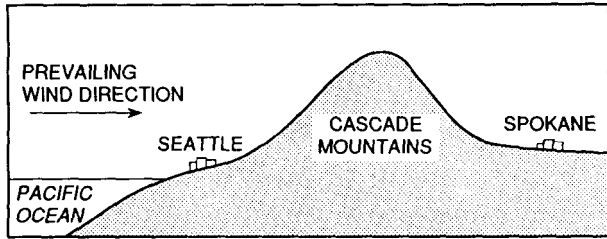


These ocean currents affect the climate pattern of city X by

- decreasing the average annual cloud cover
 - decreasing the average annual evapotranspiration
 - increasing the average annual temperature
 - increasing the average annual air pressure
- Which type of soil would water infiltrate most slowly?

1) silt	3) fine sand
2) pebbles	4) fine clay

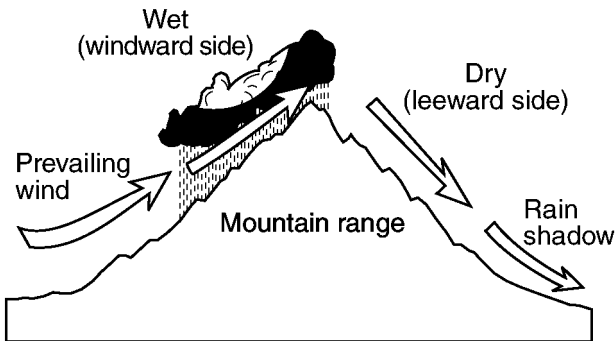
9. The diagram below shows the positions of the cities of Seattle and Spokane, Washington. Both cities are located at approximately 48° North latitude, and they are separated by the Cascade Mountains.



How does the climate of Seattle compare with the climate of Spokane?

- 1) Seattle – hot and dry
Spokane – cool and humid
- 2) Seattle – hot and humid
Spokane – cool and dry
- 3) Seattle – cool and humid
Spokane – warm and dry
- 4) Seattle – cool and dry
Spokane – warm and humid

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



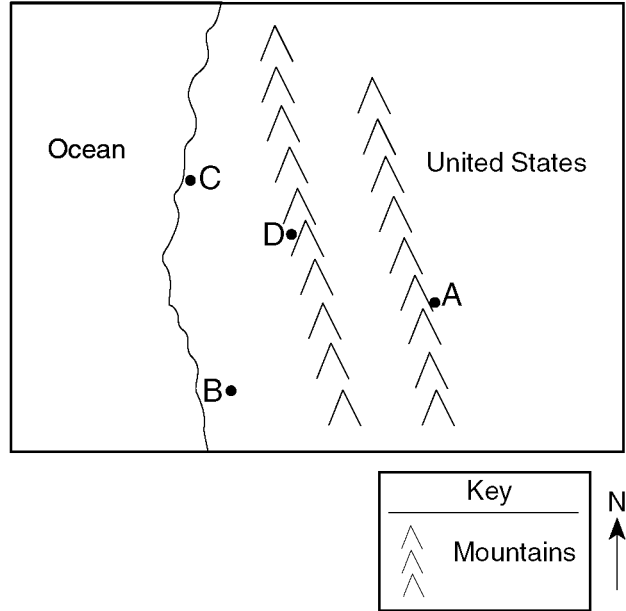
Why does the windward side of this mountain have a wet climate?

- 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.

11. A large rainstorm follows the usual direction of movement of a weather system across the United States. Which part of New York State will receive rain from the storm first?

- 1) northwestern
- 2) northeastern
- 3) southwestern
- 4) southeastern

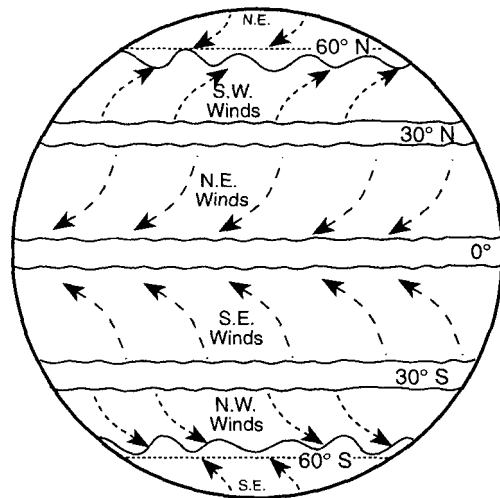
12. The map below shows the location of four cities, A, B, C, and D, in the western United States where prevailing winds are from the southwest.



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

- 1) A
- 2) B
- 3) C
- 4) D

13. The planetary winds on Earth are indicated by the curving arrows in the diagram below.



The curved paths of the planetary winds are a result of

- 1) changes in humidity
- 2) changes in temperature
- 3) Earth's rotation on its axis
- 4) Earth's gravitational force

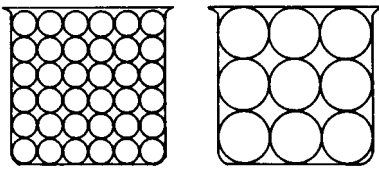
14. When rain falls on an area of sandy soil, infiltration will usually be greater than surface runoff if the

- 1) soil surface has a steep slope
- 2) soil is saturated
- 3) rate of precipitation is low
- 4) surface is impermeable

15. As the temperature of the soil decreases from 10°C to -5°C, the infiltration rate of ground water through this soil will most likely

- 1) decrease
- 2) increase
- 3) remain the same

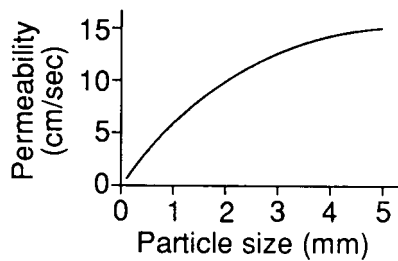
16. The diagrams below represent two identical containers filled with nonporous uniform particles. The containers represent models of two different sizes of soil particles.



Compared to the model containing larger particles, the model containing smaller particles has

- 1) less permeability and greater porosity
- 2) greater porosity and greater capillarity
- 3) less permeability and greater capillarity
- 4) greater permeability and greater porosity

17. The graph below represents soil permeability.



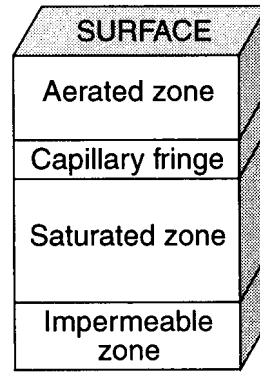
As particle size increases, permeability

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

18. A soil sample with a high percentage of open space between grains must

- 1) have low permeability
- 2) have mixed grain sizes
- 3) be porous
- 4) show a high amount of capillarity

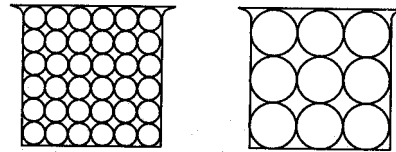
19. The diagram below represents zones within soil and rock. The zones are determined by the kinds of movement or lack of movement of water occurring within them.



What is the deepest zone into which water can be pulled by gravity?

- 1) aerated zone
- 2) capillary fringe
- 3) saturated zone
- 4) impermeable zone

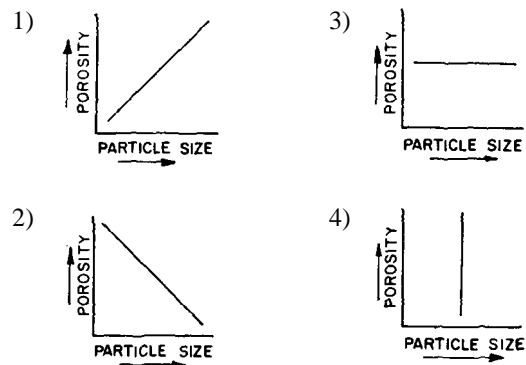
20. The diagrams below represent two containers, each filled with a sample of nonporous particles of uniform size.



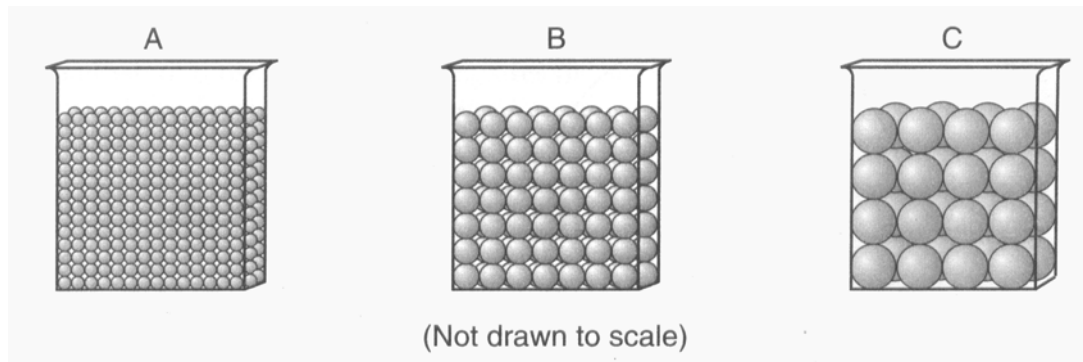
Compared to the sample of larger particles, the sample of smaller particles has

- 1) lower permeability
- 2) higher permeability
- 3) less porosity
- 4) more porosity

21. Which graph best represents the relationship between porosity and particle size for soil samples of uniform size, shape, and packing?



36. The diagrams below represent three containers, A, B, and C, which were filled with equal volumes of uniformly sorted plastic beads. Water was poured into each container to determine porosity and infiltration time.



Which data table best represents the porosity and infiltration time of the beads in the three containers?

1)

Beaker	Porosity (%)	Infiltration Time (sec)
A	40	5.2
B	40	2.8
C	40	0.4

3)

Beaker	Porosity (%)	Infiltration Time (sec)
A	20	5.2
B	30	2.8
C	40	0.4

2)

Beaker	Porosity (%)	Infiltration Time (sec)
A	40	0.4
B	40	2.8
C	40	5.2

4)

Beaker	Porosity (%)	Infiltration Time (sec)
A	20	0.4
B	30	2.8
C	40	5.2

37. During a 3-week period without rain in June, water continued to flow in a small Maryland stream. The water in the stream most likely came from

- 1) the roots of trees along the stream bank
- 2) evapotranspiration in a region far away and unaffected by the dry period
- 3) ground water flowing into the streambed
- 4) condensation on the surface of rocks in the stream

38. Two locations, one in northern Canada and one in the southwestern United States, receive the same amount of precipitation each year. The location in Canada is classified as a humid climate. Why would the location in the United States be classified as an arid climate?

- 1) The yearly distribution of precipitation is different.
- 2) The soil-moisture storage in the southwestern United States is more than that in northern Canada.
- 3) The potential evapotranspiration is greater in the southwestern United States than in northern Canada.
- 4) The vegetation of the southwestern United States is different from that of northern Canada.

39. The table below shows the relationship between total yearly precipitation (P) and potential evapotranspiration (E_p) for different types of climates.

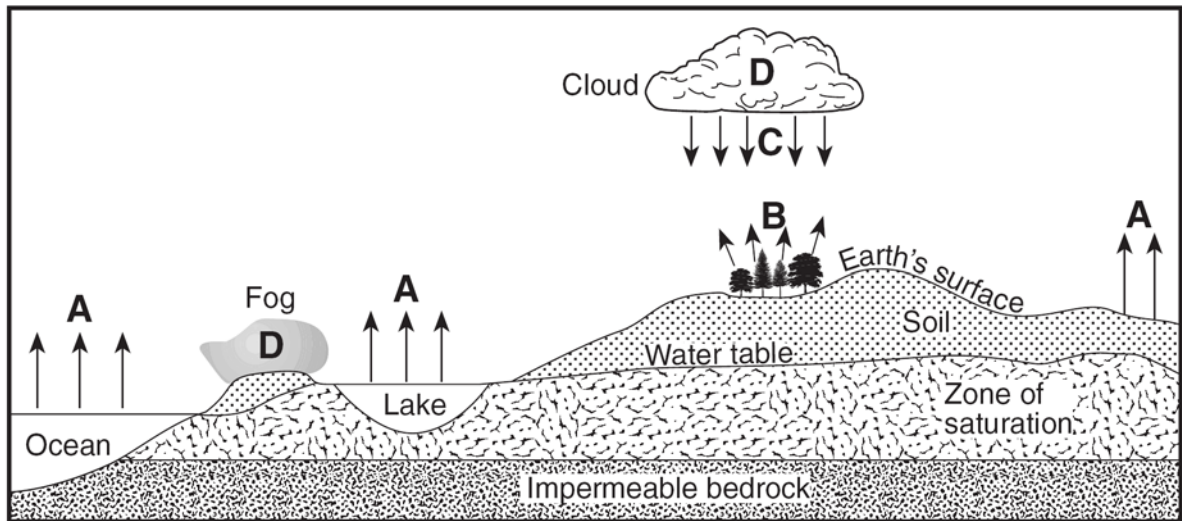
Climate Classification

Climate Type	Total Yearly P/E_p Ratio
Humid	Greater than 1.2
Subhumid	0.8 to 1.2
Semiarid	0.4 to 0.8
Arid	Less than 0.4

The total yearly precipitation (P) for a city in Texas is 218 millimeters. The total yearly potential evapotranspiration (E_p) is 951 millimeters. Which type of climate does this city have?

- 1) humid
- 2) subhumid
- 3) semiarid
- 4) arid

40. Base your answer to the following question 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.



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

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