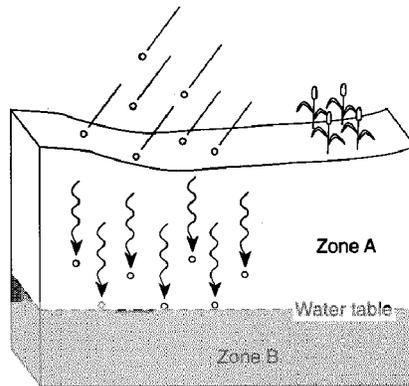


The Water Cycle

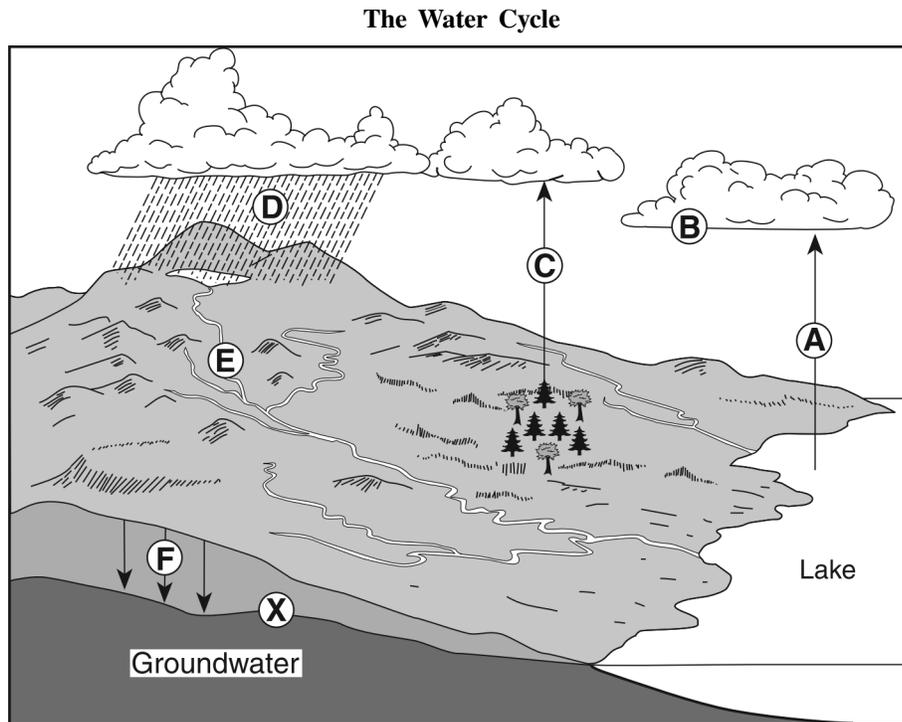
1. The diagram below is a cross-sectional view of rain falling on a farm field and then moving to the water table.



Which word best describes the movement of the rainwater through zone A?

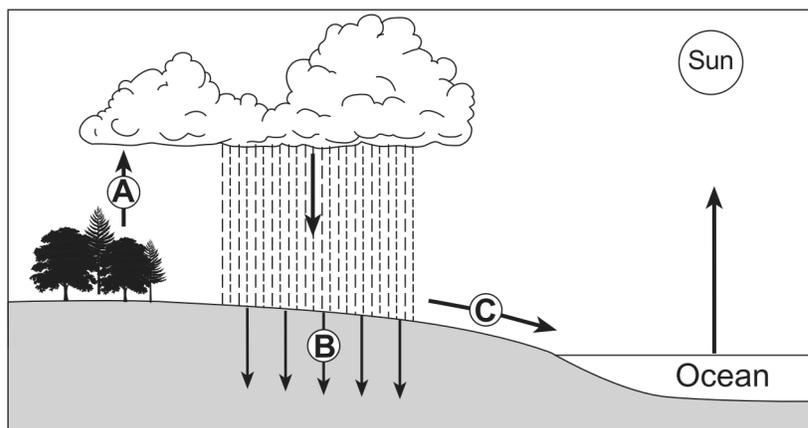
- A. runoff B. saturation C. infiltration D. precipitation
2. What is the name of the cool ocean current that flows along the west coast of South America?
- A. Brazil Current B. Peru Current
C. South Equatorial Current D. North Pacific Current

3. Base your answer(s) to the following question(s) on the diagram below, which shows a model of the water cycle. Letters A through F represent some processes of the water cycle. Letter X indicates the top of the underground zone that is saturated with water.



The processes of transpiration and evaporation are represented by letters

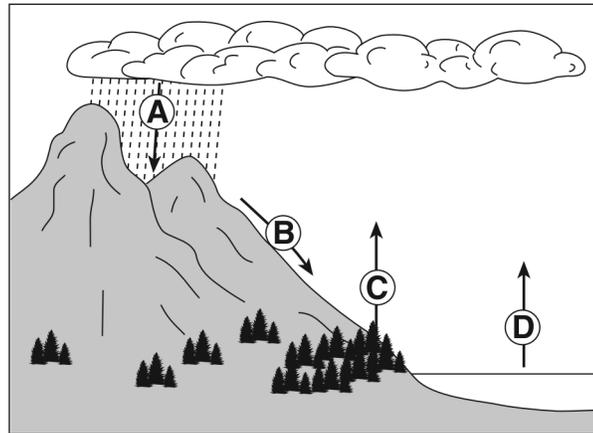
- A. A and B B. B and E C. C and A D. D and E
4. Base your responses to the following questions on the diagram below and on your knowledge of Earth science. The diagram represents portions of the water cycle. Letters A, B, and C represent processes in the water cycle. Arrows show the movement of water.



Identify *one* process represented by A.

5. Identify the process represented by B.
6. What is the main source of energy for the water cycle?

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



Which arrow represents the process of transpiration?

- A. A B. B C. C D. D

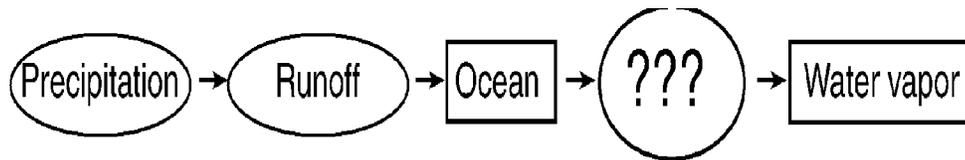
8. During a rainfall, surface runoff will probably be greatest in an area that has a

- A. steep slope and a clay-covered surface B. steep slope and a gravel-covered surface
 C. gentle slope and a grass-covered surface D. gentle slope and a tree-covered surface

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

- A. water freezing B. ice melting
 C. water evaporating D. water vapor condensing

10. The flowchart shows part of Earth’s water cycle. The question marks indicate a part of the flowchart that has been deliberately left blank.



Which process should be shown in place of the question marks to best complete the flowchart?

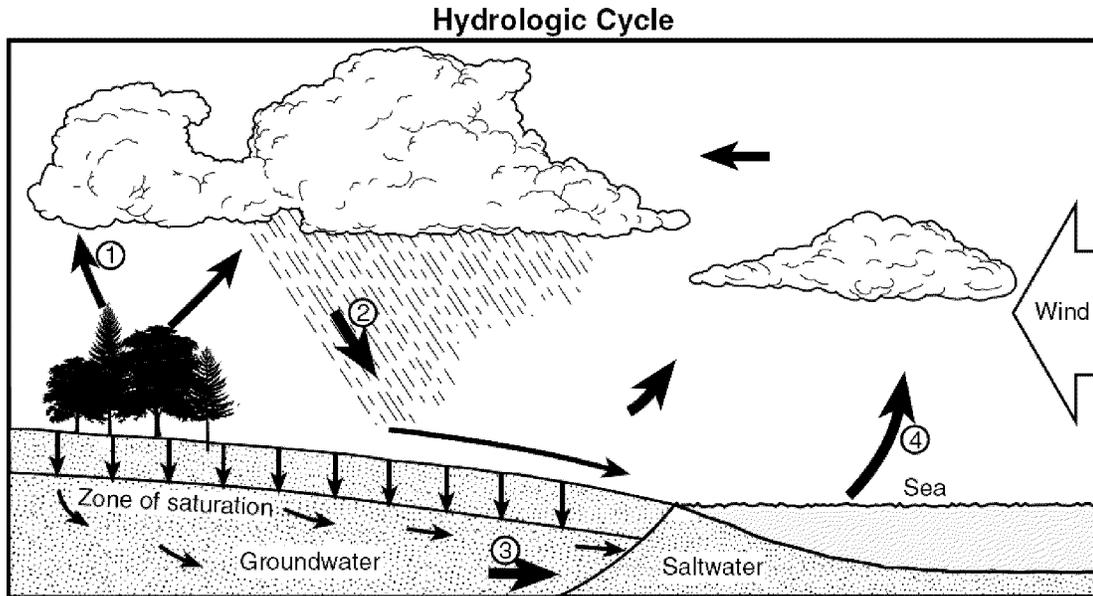
- A. condensation B. deposition C. evaporation D. infiltration

11. Most water vapor enters Earth’s atmosphere by the processes of

- A. condensation and precipitation B. radiation and cementation
 C. conduction and convection D. evaporation and transpiration

12. When rainfall occurs, the rainwater will most likely become surface runoff if the land surface is
- A. sandy B. impermeable C. covered with grass D. nearly flat

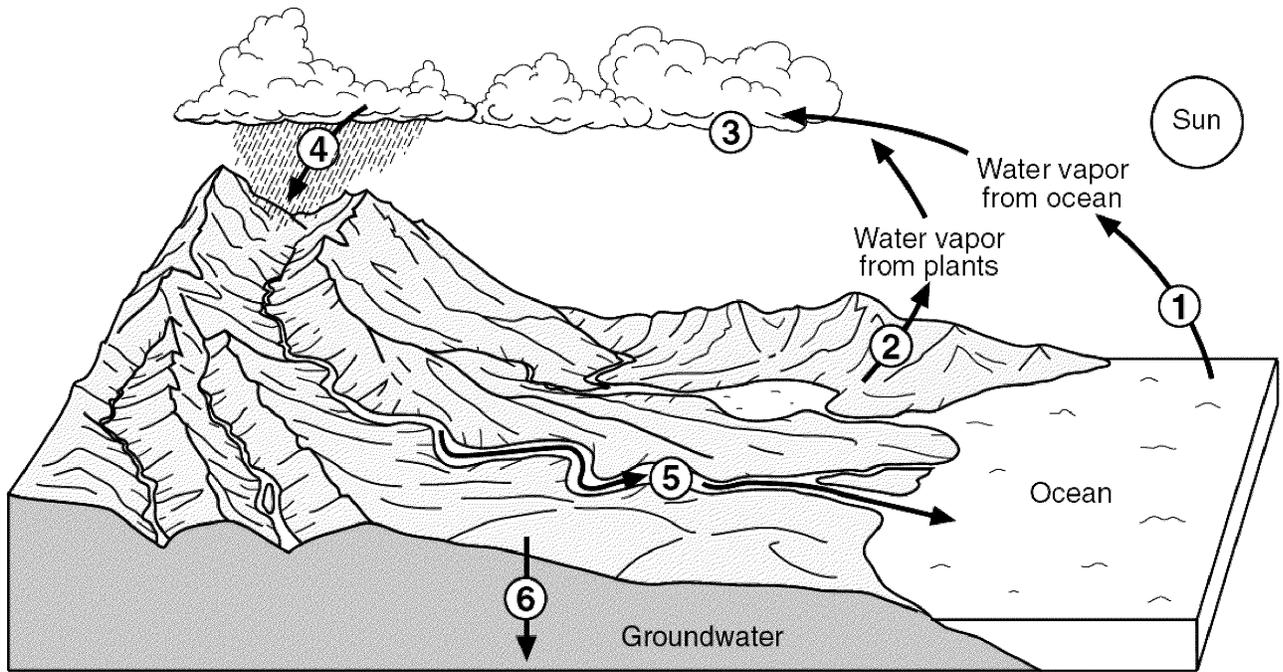
13. Base your answer(s) to the following question(s) on the water cycle diagram shown below. Some arrows are numbered 1 through 4 and represent various processes.



Which numbered arrow best represents the process of transpiration?

- A. 1 B. 2 C. 3 D. 4
14. The clouds have formed primarily because moist air
- A. rises, expands, and cools B. rises, expands, and warms
- C. sinks, compresses, and cools D. sinks, compresses, and warms

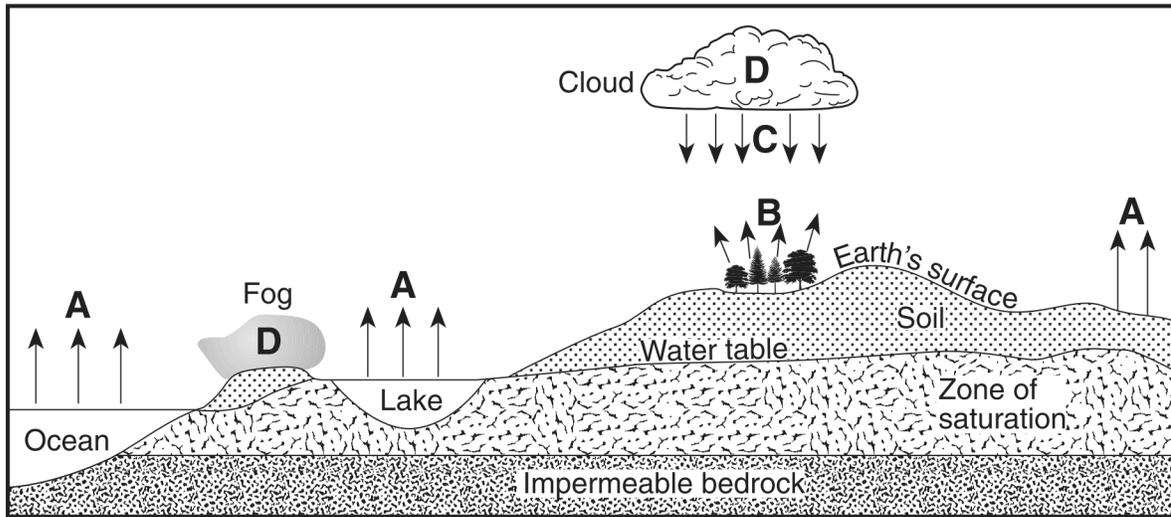
15. The diagram below shows a model of the water cycle. The arrows show the movement of water molecules through the water cycle. The circled numbers represent the processes that occur as the water molecules reach the different stages of the water cycle.



Complete the table by identifying the name of the water cycle process occurring at *each* number.

Number	Water Cycle Process
1	
2	
3	
4	
5	
6	

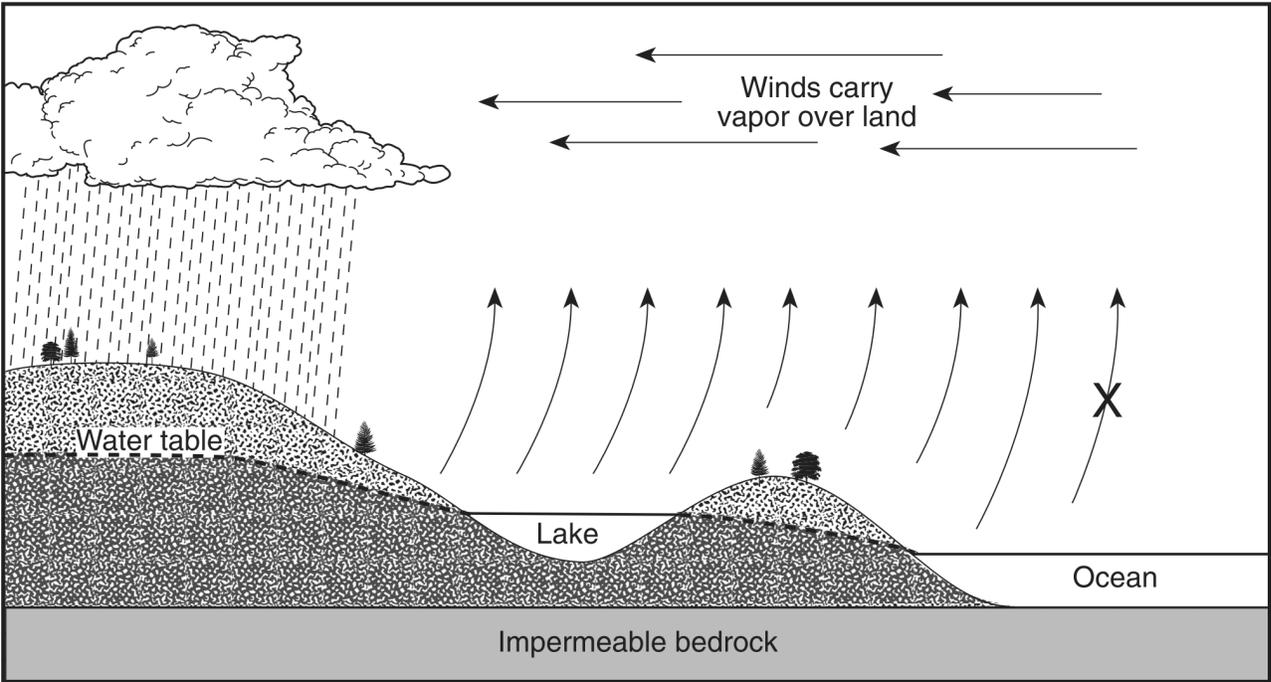
16. Base your answer(s) to the following question(s) on the cross section below, which represents part of Earth's water cycle. Letters *A*, *B*, *C*, and *D* represent processes that occur during the cycle. The level of the water table and the extent of the zone of saturation are shown.



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

- A. *A* and *B* B. *A* and *C* C. *B* and *D* D. *C* and *D*
17. What are two water cycle processes *not* represented by arrows in this cross section?
- A. transpiration and condensation B. evaporation and melting
 C. precipitation and freezing D. runoff and infiltration

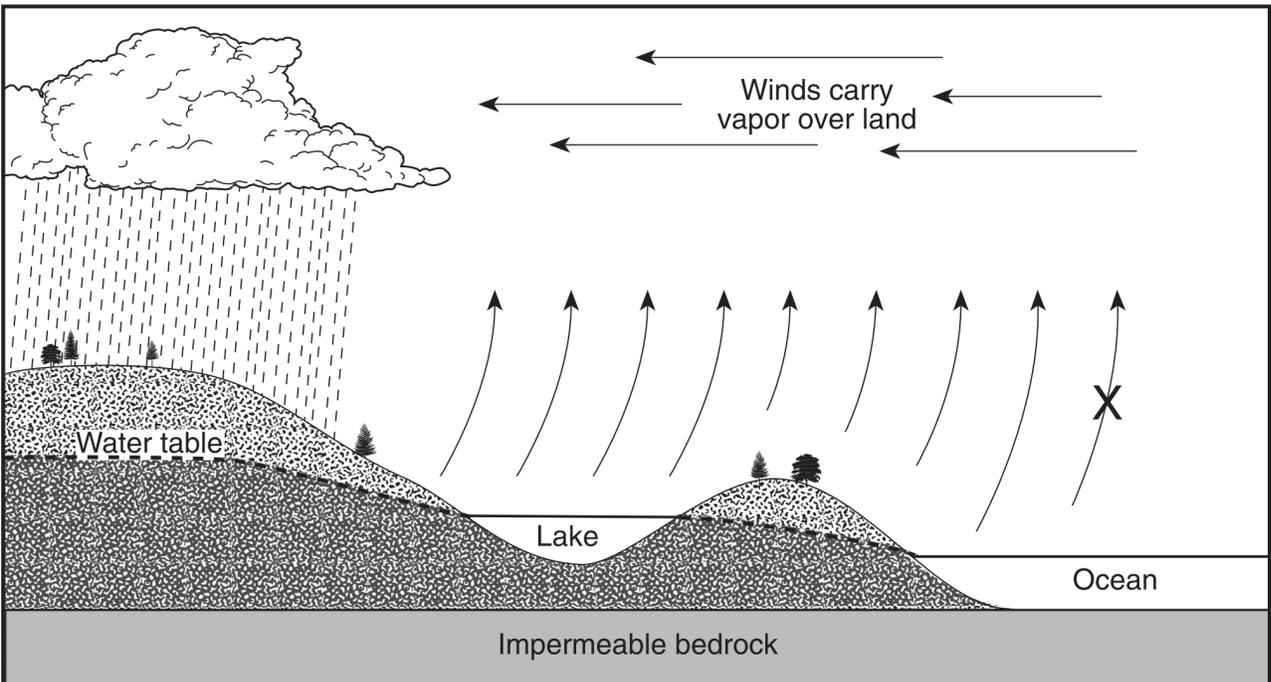
18. Base your answer(s) to the following question(s) on the cross section below, which shows the general pattern of water movement in the water cycle. Letter *X* represents a water-cycle process.



What process of the water cycle is represented by *X*?

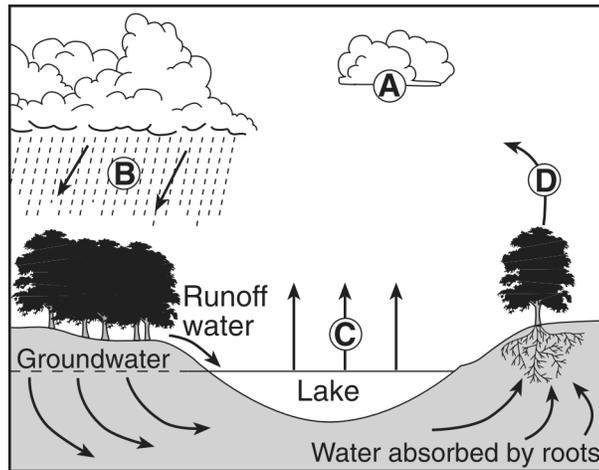
19. Describe the process of condensation.

20. Base your answer(s) to the following question(s) on the cross section below, which shows the general pattern of water movement in the water cycle. Letter *X* represents a water-cycle process.



Describe four surface conditions that would allow runoff to occur.

21. Explain two roles of plants in the water cycle.
22. The letters A through D in the cross section below represent four of the processes that are part of the water cycle.



Which table correctly matches each letter with the process that it represents?

A.

Letter	Process
A	condensation
B	precipitation
C	transpiration
D	evaporation

B.

Letter	Process
A	evaporation
B	condensation
C	precipitation
D	transpiration

C.

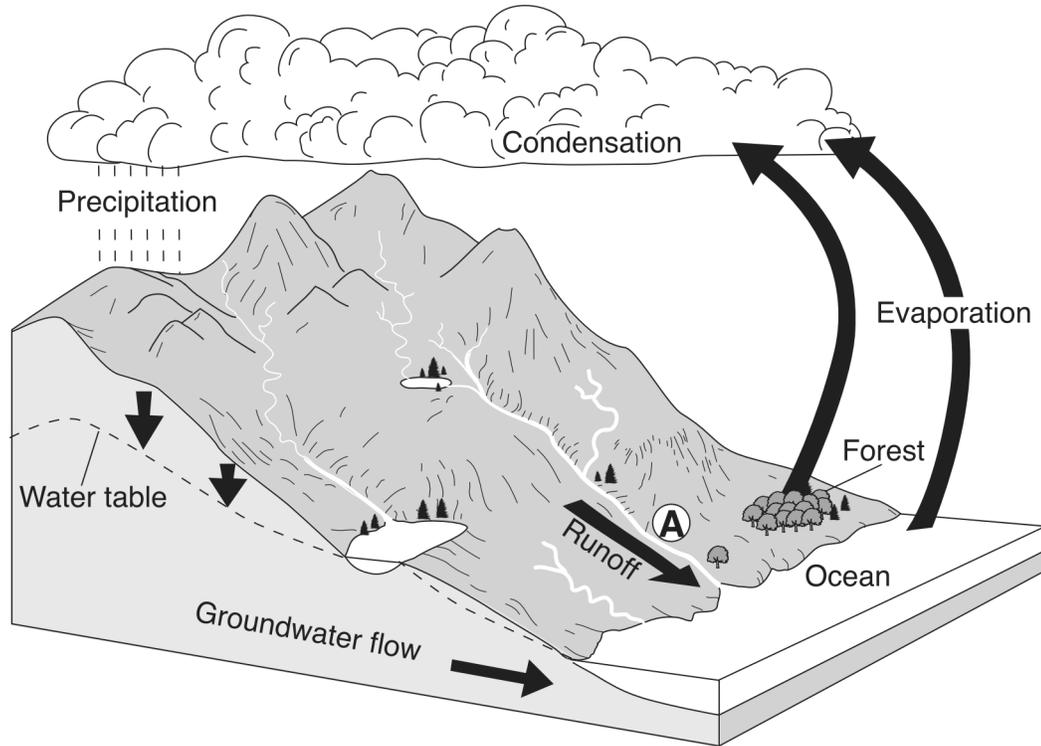
Letter	Process
A	transpiration
B	precipitation
C	evaporation
D	condensation

D.

Letter	Process
A	condensation
B	precipitation
C	evaporation
D	transpiration

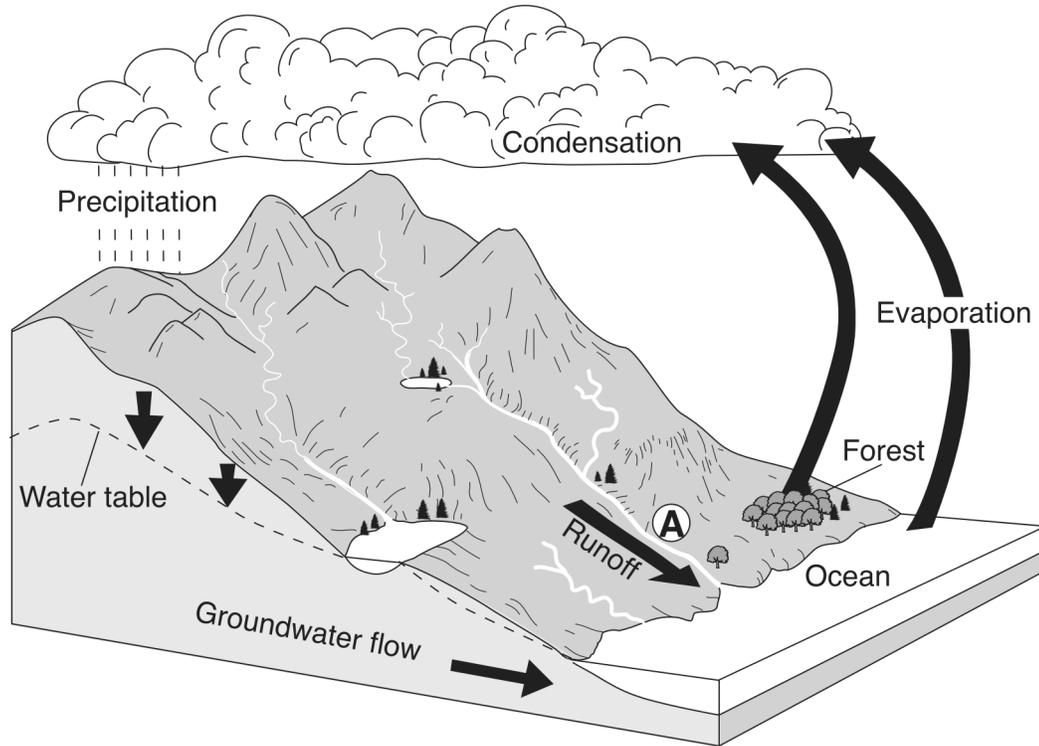
23. The entire area drained by a river and its tributaries is called a
- A. delta B. watershed C. valley D. floodplain
24. Which process led to the formation of thick salt deposits found in the bedrock at some locations in New York State?
- A. melting B. runoff C. condensation D. evaporation
25. The *least* amount of surface water runoff will occur when soil pore spaces are
- A. saturated and the slope is steep B. saturated and the slope is gentle
- C. unsaturated and the slope is steep D. unsaturated and the slope is gentle

26. Base your answer(s) to the following question(s) on the diagram below, which represents Earth's water cycle. The arrows represent some water cycle processes. Letter A indicates a surface location on Earth.



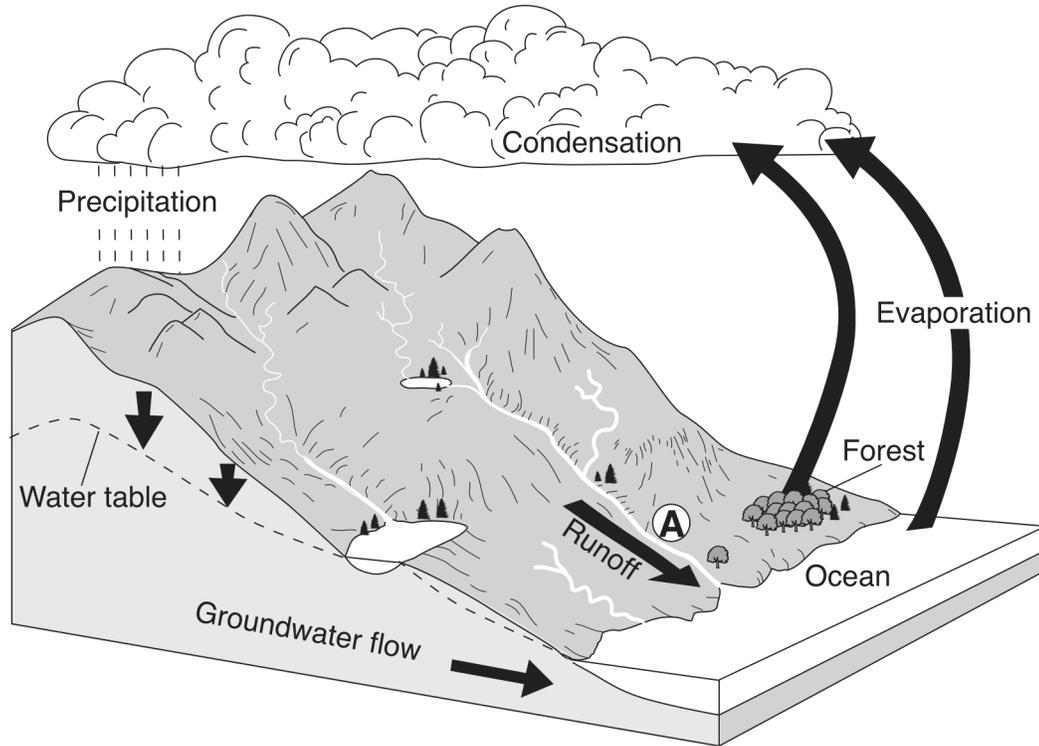
Other than evaporation, which water cycle process transfers large amounts of water vapor into the atmosphere from the forest?

27. Base your answer(s) to the following question(s) on the diagram below, which represents Earth's water cycle. The arrows represent some water cycle processes. Letter A indicates a surface location on Earth.



Describe four surface conditions at location A that would *decrease* the rate of runoff.

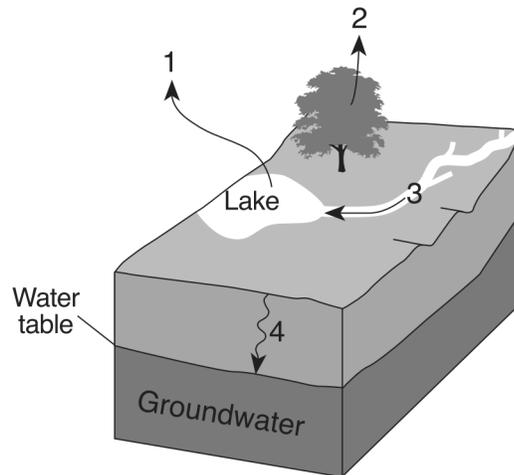
28. Base your answer(s) to the following question(s) on the diagram below, which represents Earth's water cycle. The arrows represent some water cycle processes. Letter A indicates a surface location on Earth.



How many joules (J) of heat energy are released by each gram of water vapor that condenses to form cloud droplets?

_____ J

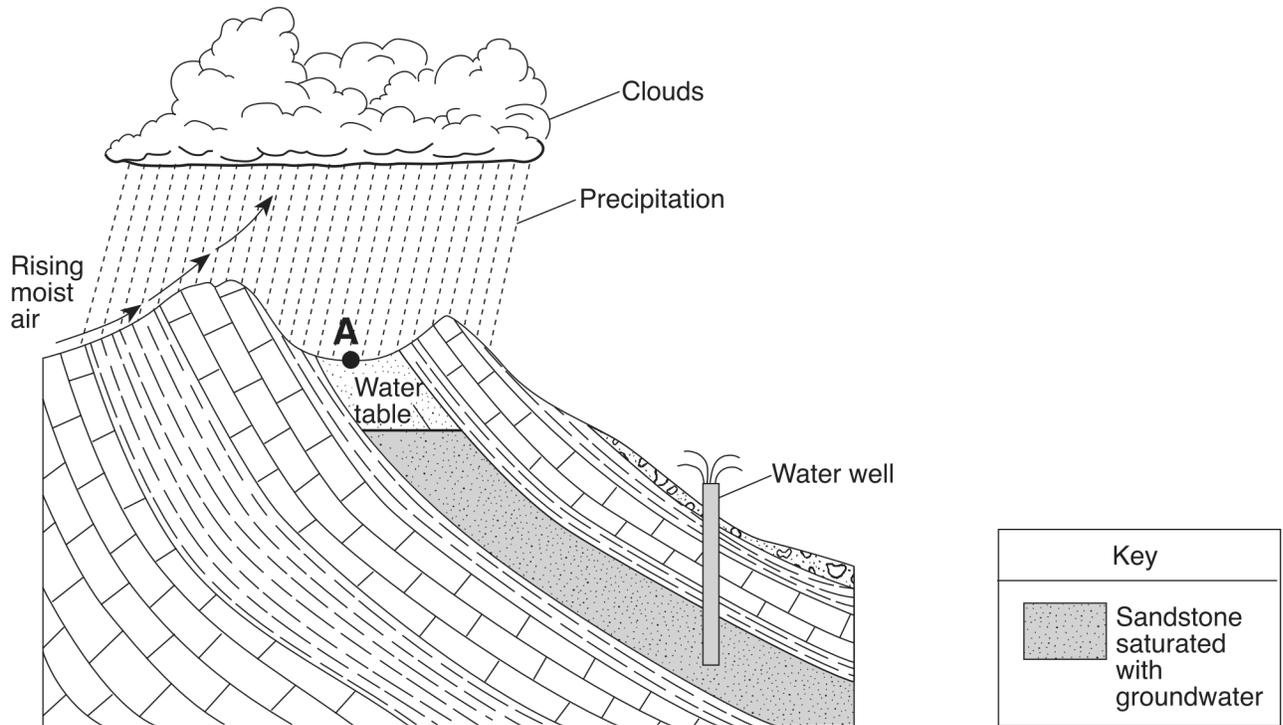
29. The arrows in the block diagram below show the movement of water after it has fallen as precipitation.



Which arrow indicates the process of transpiration?

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

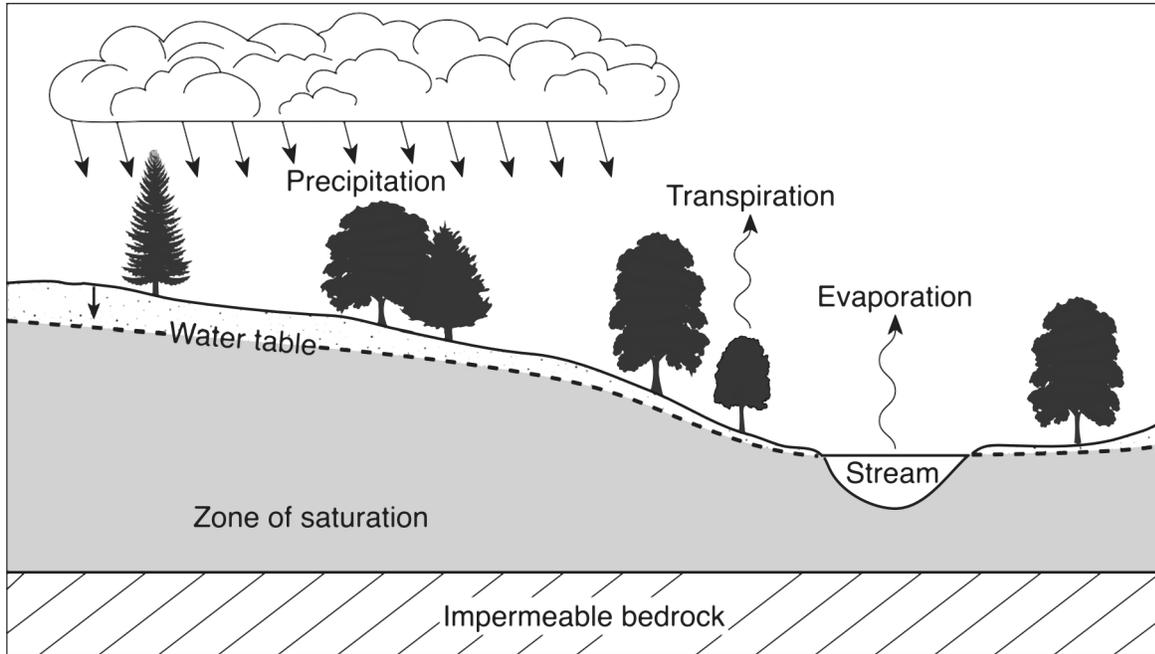
30. Base your answer(s) to the following question(s) on the cross section below, which shows water flowing out of a well drilled through tilted sedimentary bedrock. Point A represents a location on Earth's surface.



Describe *one* characteristic of the sandstone layer that allowed part of this layer to become saturated with groundwater.

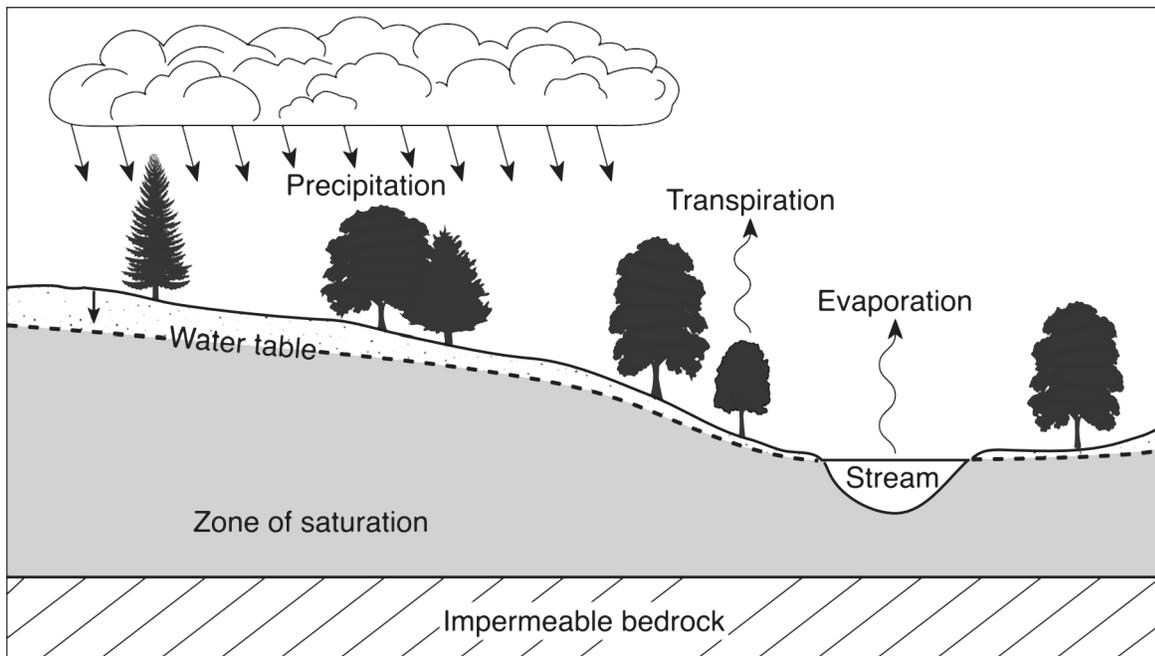
31. Identify *one* process that causes the clouds to form in the rising moist air.

32. Base your answer(s) to the following question(s) on the diagram below, which shows some processes in the water cycle.



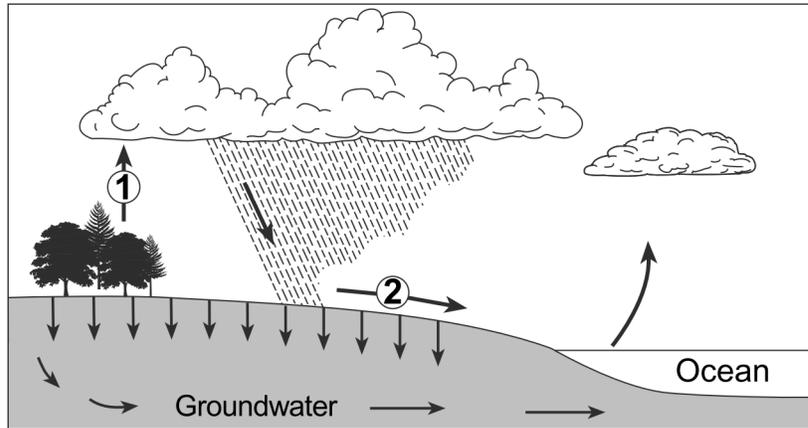
State the relationship between the amount of precipitation in this area and the height of the water table above the impermeable bedrock.

33. Base your answer(s) to the following question(s) on the diagram below, which shows some processes in the water cycle.



Describe *one* change that would cause more water to evaporate from this stream.

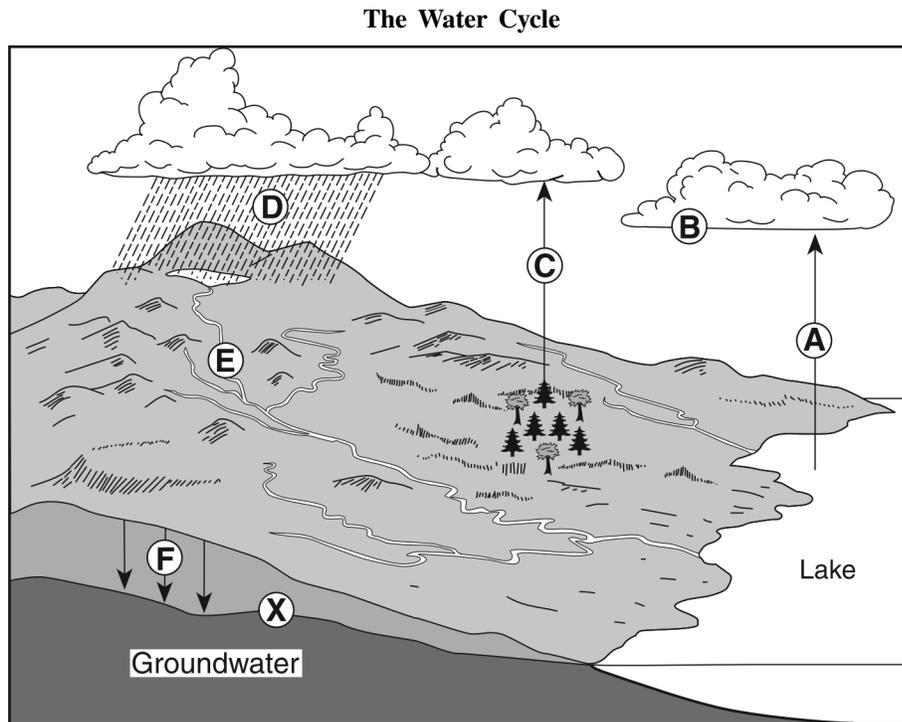
34. The arrows in the diagram below represent processes in the water cycle.



Which processes in the water cycle are identified by the numbered arrows?

- A. Process 1 is transpiration; process 2 is runoff.
 - B. Process 1 is precipitation; process 2 is runoff.
 - C. Process 1 is condensation; process 2 is infiltration.
 - D. Process 1 is evaporation; process 2 is infiltration.
35. Which conditions before April 2005 in the Lake Powell region most likely produced the *decrease* in the water level of Lake Powell?
- A. Runoff exceeded precipitation.
 - B. Precipitation exceeded runoff.
 - C. Evaporation exceeded precipitation.
 - D. Precipitation exceeded evaporation.

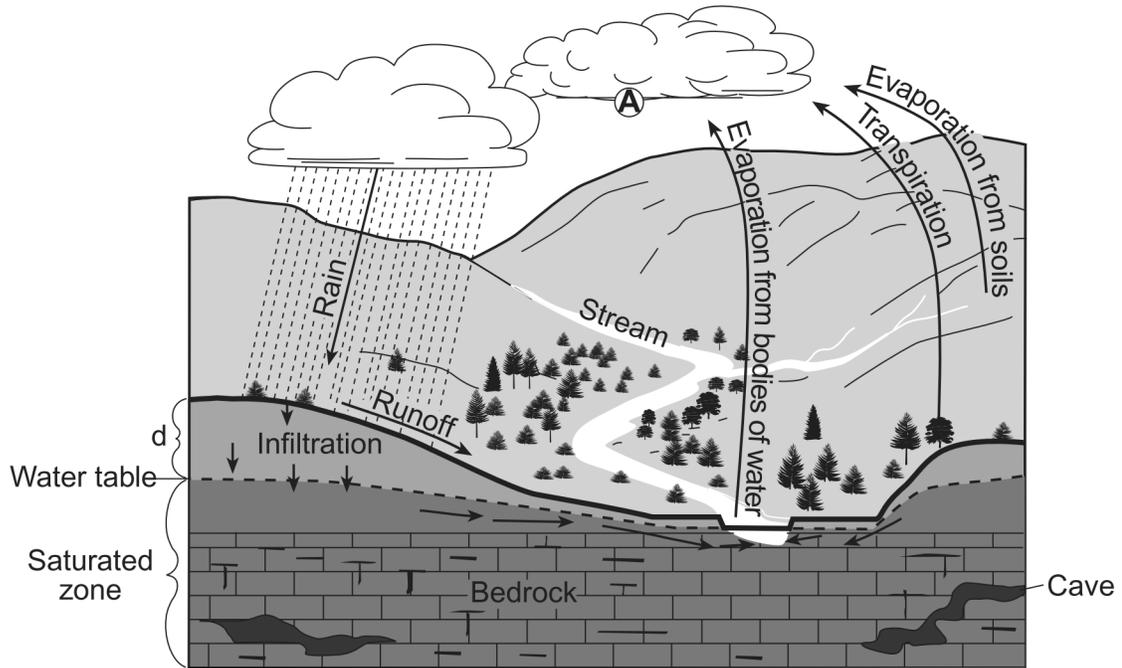
36. Base your answer(s) to the following question(s) on the diagram below, which shows a model of the water cycle. Letters A through F represent some processes of the water cycle. Letter X indicates the top of the underground zone that is saturated with water.



Which process is represented by letter F?

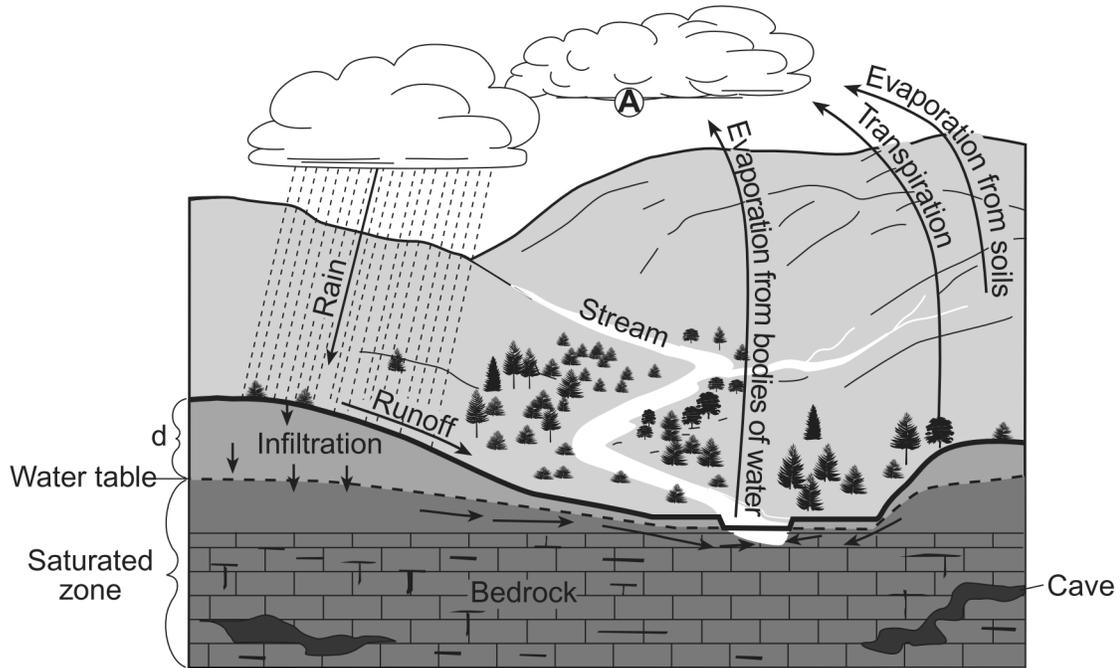
- A. capillarity B. infiltration C. condensation D. vaporization
37. What does letter X represent?
- A. the water table B. a floodplain C. sea level D. impermeable rock
38. If the surface soil is saturated and precipitation increases, there will be
- A. a decrease in the amount of groundwater B. a decrease in the surface elevation of the lake
- C. an increase in the rate of capillarity D. an increase in the amount of runoff

39. Base your answer(s) to the following question(s) on the diagram below and on your knowledge of Earth science. The diagram represents a portion of a stream and its surrounding bedrock. The arrows represent the movement of water molecules by the processes of the water cycle. The water table is indicated by a dashed line. Letter *A* represents a water cycle process occurring at a specific location. Letter *d* represents the distance between the water table and the land surface.



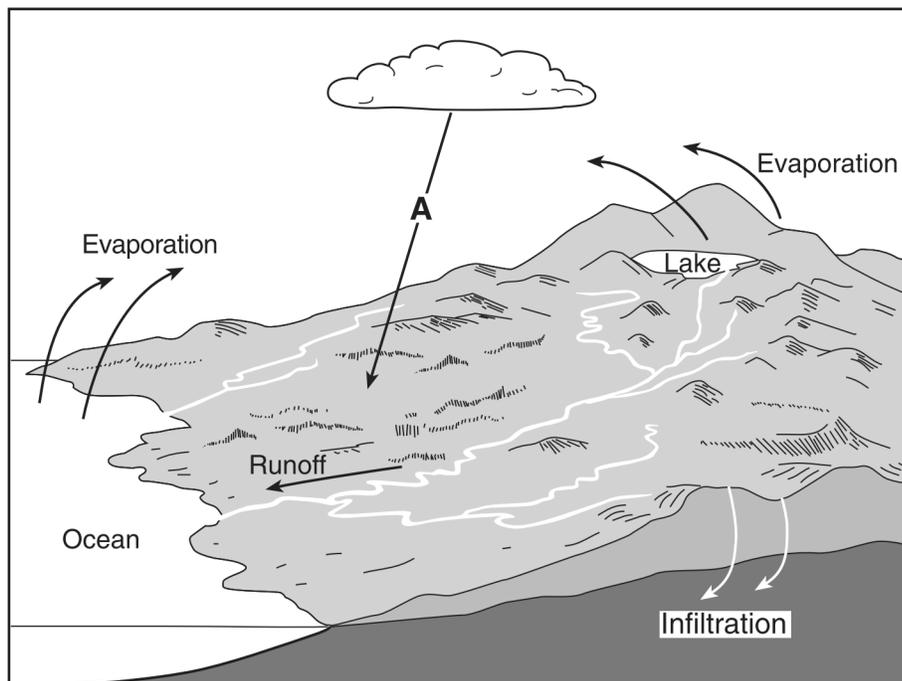
State the conditions that would lead to a decrease in the level of the water table.

40. Base your answer(s) to the following question(s) on the diagram below and on your knowledge of Earth science. The diagram represents a portion of a stream and its surrounding bedrock. The arrows represent the movement of water molecules by the processes of the water cycle. The water table is indicated by a dashed line. Letter *A* represents a water cycle process occurring at a specific location. Letter *d* represents the distance between the water table and the land surface.



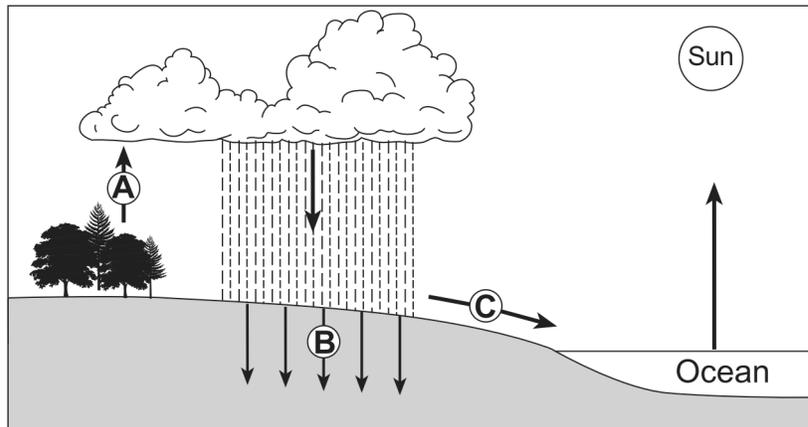
Describe the soil permeability and the land surface slope that allow the most infiltration of rainwater and the *least* runoff.

41. Base your answer(s) to the following question(s) on the model below and on your knowledge of Earth science. The model shows the movement of water in the water cycle. Arrow *A* represents a process within the water cycle.



Identify *one* water cycle process represented by arrow *A*.

42. A portion of the land surface shown was recently paved with asphalt and concrete. Describe the change in the amount of runoff and infiltration that will occur.
43. During a rainstorm, when soil becomes saturated, the amount of infiltration
- A. decreases and runoff decreases B. decreases and runoff increases
- C. increases and runoff decreases D. increases and runoff increases
44. Base your responses to the following questions on the diagram below and on your knowledge of Earth science. The diagram represents portions of the water cycle. Letters *A*, *B*, and *C* represent processes in the water cycle. Arrows show the movement of water.



Describe the general relationship between the amount of rainfall and the amount of runoff represented by *C*.

45. Which conditions produce the most surface water runoff?
- A. steep slope, heavy rain, and frozen ground B. steep slope, gentle rain, and unfrozen ground
- C. gentle slope, heavy rain, and frozen ground D. gentle slope, gentle rain, and unfrozen ground
46. What is the most effective method for increasing the rate of evaporation of a given amount of water?
- A. decreasing the water's temperature
- B. decreasing the air movement over the water's surface
- C. increasing the water's surface area
- D. increasing the air pressure over the water's surface
47. The potential evapotranspiration of an area is most dependent on the
- A. amount of runoff B. pore space in the soil C. ground-water storage D. insolation received

48. Surface runoff is most likely to be greatest when rainfall lands on a soil surface that is
- A. porous and flat
 - B. porous and generally sloping
 - C. impermeable and gently sloping
 - D. unsaturated and flat
49. Which process occurs when water vapor moves out of the leaves of a tree into the atmosphere?
- A. condensation
 - B. infiltration
 - C. runoff
 - D. transpiration
50. Which soil condition allows the most infiltration of precipitation?
- A. saturated soil
 - B. a steep soil surface
 - C. a coarse-grained soil
 - D. an impermeable surface
51. Which condition makes surface runoff of rainfall most likely?
- A. The gradient of the surface is low.
 - B. Permeability rate exceeds the rate of rainfall.
 - C. Surface soil pore spaces are filled.
 - D. The porosity of the surface soil is high.
52. Earth's hydrosphere is best described as the
- A. solid outer layer of Earth
 - B. liquid outer layer of Earth
 - C. magma layer located below Earth's stiffer mantle
 - D. gaseous layer extending several hundred kilometers from Earth into space
53. In general, the probability of flooding decreases when there is an increase in the amount of
- A. precipitation
 - B. infiltration
 - C. runoff
 - D. snow melt
54. A strong west wind steadily blew over Lake Ontario picking up moisture. As this moist air flowed over the Tug Hill Plateau, the plateau received a 36-inch snowfall. This snow fell from clouds that formed when rising air was
- A. cooled by expansion, causing water vapor to condense
 - B. cooled by compression, causing water vapor to condense
 - C. warmed by expansion, causing water vapor to evaporate
 - D. warmed by compression, causing water vapor to evaporate

55. The water table usually rises when there is
- A. a decrease in the amount of infiltration
 - B. a decrease in the amount of surface area covered by vegetation
 - C. an increase in the amount of precipitation
 - D. an increase in the slope of the land

The Water Cycle 01/13/2016

1.
Answer: C
2.
Answer: B
3.
Answer: C
4.
Answer: transpiration or evaporation/vaporization or evapotranspiration
5.
Answer: infiltration; water seeping into the ground; absorption/recharge of the storage; seeping/seepage/percolation; water entering/soaking/sinking into the soil
6.
Answer: the Sun; insolation; solar radiation/solar energy; sunlight
7.
Answer: C
8.
Answer: A
9.
Answer: D
10.
Answer: C
11.
Answer: D
12.
Answer: B
13.
Answer: A
14.
Answer: A
15.
Answer:

Number	Water Cycle Process
1	evaporation
2	transpiration
3	condensation
4	precipitation
5	runoff
6	infiltration

16.
Answer: A
17.
Answer: D
18.
Answer: evaporation
19.
Answer: - Condensation is the phase change from water vapor (gas) to water (liquid).
20.
Answer: - The soil is saturated. - Rate of rainfall exceeds the rate of infiltration. - The ground is frozen. - The land has a steep slope.
21.
Answer: - Plants release water into the air by transpiration. - Runoff is slowed by plants, so more infiltration can occur.
22.
Answer: D
23.
Answer: B
24.
Answer: D
25.
Answer: D
26.
Answer: transpiration or sublimation.
27.
Answer: - a decrease in slope - increased vegetation - increased infiltration - a more permeable surface
28.
Answer: 2260 J.
29.
Answer: B
30.
Answer: - The sandstone is permeable. - porous - allows water to pass through - The sandstone layer is exposed at the surface.

31.
Answer: - condensation - expansion - cooling
32.
Answer: When precipitation increases, the water table will rise (or get closer to the surface). The level of the water table above the bedrock will increase with greater precipitation. Less precipitation will cause a lower water table. There is a direct relationship between the amount of precipitation and the height of the water table above the impermeable bedrock.
33.
Answer: An increase in temperature The stream's surface area increased. Increase in wind
34.
Answer: A
35.
Answer: C
36.
Answer: B
37.
Answer: A
38.
Answer: D
39.
Answer: condensation
40.
Answer: [answers vary] Ex: Soil permeability—high, the soil is unsaturated, very permeable soil; Land surface slope—a level slope, a gentle slope
41.
Answer: Acceptable responses include, but are not limited to: precipitation; raining; snowing; sleeting; hailing
42.
Answer: Runoff: increases; goes up
Infiltration: decreases; less; would drop to zero/near zero
43.
Answer: B
44.
Answer: as precipitation/rainfall increases, runoff increases; more rain leads to more runoff; direct relationship; runoff is usually less than rainfall
45.
Answer: A

46.
Answer: C
47.
Answer: D
48.
Answer: C
49.
Answer: D
50.
Answer: C
51.
Answer: C
52.
Answer: B
53.
Answer: B
54.
Answer: A
55.
Answer: C