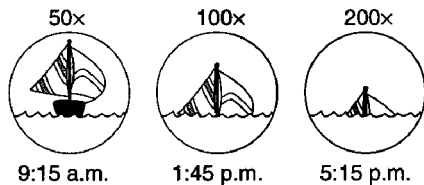


Name: _____

Date: _____

1. The diagrams below represent photographs of a large sailboat take through a telescope over time as the boat sailed away from shore out to sea. Each diagram shows the magnification of the lenses and the time of day.

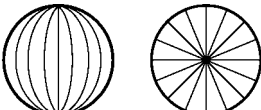
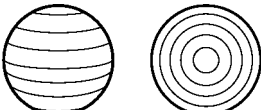
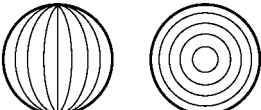
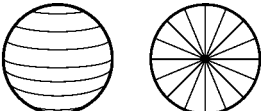


Which statement best explains the apparent sinking of this sailboat?

- A. The sailboat is moving around the curved surface of the Earth
- B. The sailboat appears smaller as it moves farther away
- C. The change in density of the atmosphere is causing refraction of light rays
- D. The tide is causing an increase in the depth of the ocean
2. An example of noncyclic change is the occurrence of
- A. earthquakes
- B. ocean tides
- C. the phases of the Moon
- D. the seasons of the year
3. For an observer in New York State, the altitude of Polaris is 43° above the northern horizon. This observer's latitude is closest to the latitude of
- A. New York City B. Utica
- C. Plattsburgh D. Jamestown

4. Which New York State landscape region is located at 42°N , 75°W ?
- A. Erie-Ontario Lowlands
- B. Hudson-Mohawk Lowlands
- C. the Catskills
- D. Tug Hill Plateau
5. Which altitude of Polaris could be observed in New York State?
- A. 23° B. 35° C. 44° D. 90°
6. Compared to the circumference of the Earth measured at the Equator, the circumference of Earth measured through the poles is
- A. slightly smaller B. slightly larger
- C. exactly the same
7. At which latitude and longitude in New York State would a salt mine in Silurian-age bedrock most likely be located?
- A. 41°N 72°W B. 43°N 77°W
- C. 44°N 74°W D. 44°N 76°W

8. The lines on which set of views best represent Earth's latitude system?

- A. 
Equatorial view Polar view
- B. 
Equatorial view Polar view
- C. 
Equatorial view Polar view
- D. 
Equatorial view Polar view

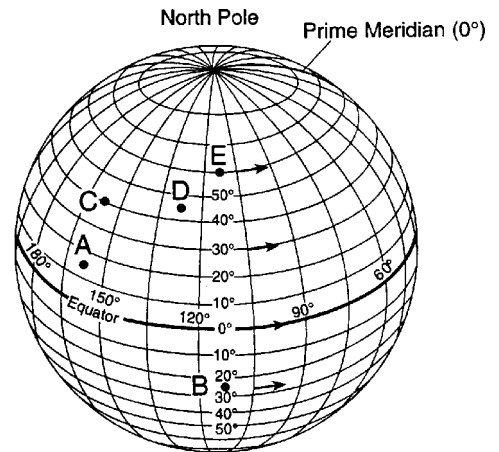
9. Which latitude and longitude coordinates represent a location on the continent of Australia?

- A. 20°N , 135°E B. 20°N , 135°W
C. 20°S , 135°E D. 20°S , 135°W

10. Which reference line passes through both the geographic North Pole and the geographic South Pole?

- A. 0° latitude B. 0° longitude
C. Tropic of Cancer D. Tropic of Capricorn

11. Base your answer(s) to the following question(s) on the *Earth Science Reference Tables*, the diagram below, and your knowledge of Earth science. The diagram represents latitude and longitude lines on Earth. Points *A* through *E* represent locations on Earth. Arrows represent direction of rotation.



What is the approximate latitude and longitude of location *A*?

- A. 160°N , 15°E B. 160°S , 15°W
C. 15°N , 160°E D. 15°N , 160°W

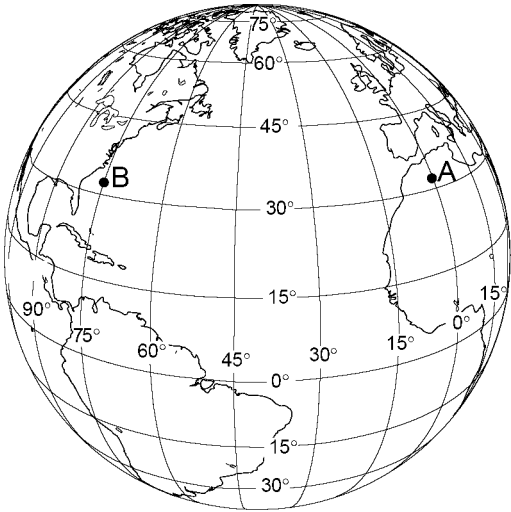
12. Locations *C* and *D* both have the same

- A. prevailing wind direction
B. latitude
C. altitude of Polaris
D. longitude

13. When the local time at location *C* is 3 pm, the local time at location *D* is

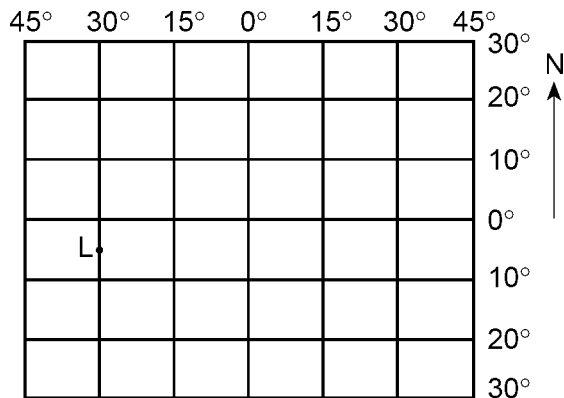
- A. 1 pm B. 5 pm C. 3 pm D. 3 am

14. The accompanying diagram shows the latitude-longitude grid on an Earth model. Points *A* and *B* are locations on the surface.



On Earth, the solar time difference between point *A* and point *B* would be

- A. 1 hour B. 5 hours
 C. 12 hours D. 24 hours
15. The accompanying diagram represents part of Earth's latitude-longitude system.

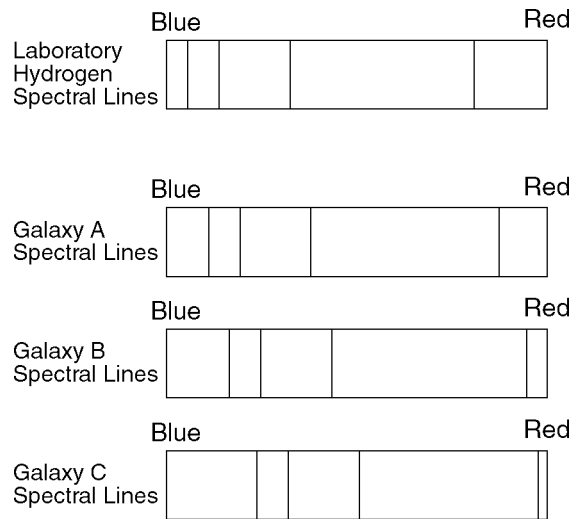


What is the latitude and longitude of point *L*?

- A. 5° E 30° N B. 5° W 30° S
 C. 5° N 30° E D. 5° S 30° W
16. What is the approximate location of the Canary Islands hot spot?
- A. 32° S 18° W B. 32° S 18° E
 C. 32° N 18° W D. 32° N 18° E

17. The approximate latitude of Utica, New York, is
- A. 43° 05' N B. 43° 05' S
 C. 75° 15' E D. 75° 15' W
18. What time is it in Greenwich, England (at 0° longitude), when it is noon in Massena, New York?
- A. 7 am B. noon C. 5 pm D. 10 pm
19. What is the approximate altitude of *Polaris* at Syracuse, New York?
- A. 43° B. 47° C. 76° D. 90°
20. A ship is at a location of 40° S 77° W. Which type of surface ocean current and tectonic plate boundary are located beneath this ship?
- A. warm ocean current and a transform boundary
 B. warm ocean current and a convergent boundary
 C. cool ocean current and a transform boundary
 D. cool ocean current and a convergent boundary
21. Which statement best illustrates a classification system?
- A. A glacier melts at the rate of one meter per year.
 B. Ocean depths are measured by using sonar.
 C. Snowfall predictions for winter storms vary.
 D. Stars are grouped according to their color.

22. In the accompanying diagram, the spectral lines of hydrogen gas from three galaxies, *A*, *B*, and *C*, are compared to the spectral lines of hydrogen gas observed in a laboratory.

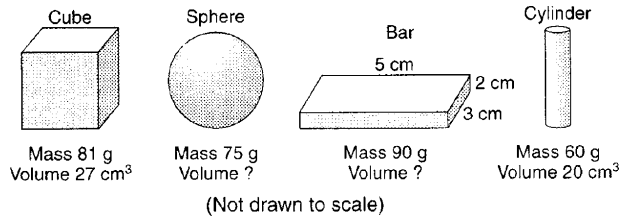


What is the best inference that can be made concerning the movement of galaxies *A*, *B*, and *C*?

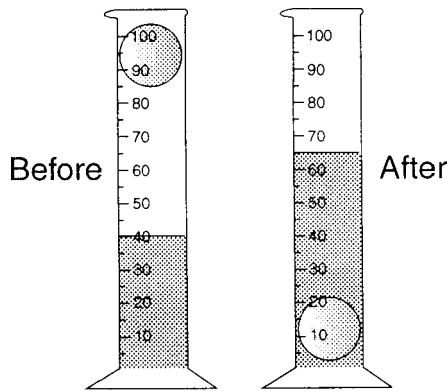
- A. Galaxy *A* is moving away from Earth, but galaxies *B* and *C* are moving toward Earth.
- B. Galaxy *B* is moving away from Earth, but galaxies *A* and *C* are moving toward Earth.
- C. Galaxies *A*, *B*, and *C* are all moving toward Earth.
- D. Galaxies *A*, *B*, and *C* are all moving away from Earth.
23. The redshift of light from distant galaxies provides evidence that the universe is
- A. shrinking, only
- B. expanding, only
- C. shrinking and expanding in a cyclic pattern
- D. remaining the same size
24. Cosmic background radiation provides direct evidence for the origin of
- A. the universe
- B. our solar system
- C. Earth's ozone layer
- D. Earth's earliest atmosphere

25. Science investigators initially use classification systems to
- A. extend their powers of observation
- B. make more accurate inferences
- C. organize their observations in a meaningful way
- D. make direct comparisons with standard units of measurement
26. Which action can be performed most accurately using only the human senses?
- A. tearing a sheet of paper into squares whose sides measure 1 centimeter
- B. adding 10 grams of salt into a cup of water
- C. measuring the air pressure in the room
- D. counting 28 shells from a beach
27. A rock sample has a mass of 16 grams and a volume of 8 cubic centimeters. When the rock is cut in half, what is the volume and density of each piece?
- A. 8 cm^3 and 0.5 g/cm^3 B. 8 cm^3 and 1.0 g/cm^3
- C. 4 cm^3 and 2.0 g/cm^3 D. 4 cm^3 and 4.0 g/cm^3

28. Base your answer(s) to the following question(s) on the Earth Science Reference Tables, the diagrams below, and your knowledge of Earth science. The diagrams represent four solid objects made of the same uniform material. The volumes of the sphere and the bar are not given.



The sphere was dropped into water in a graduated cylinder as shown.



What is the volume of the sphere?

- A. 15 mL B. 25 mL C. 40 mL D. 65 mL

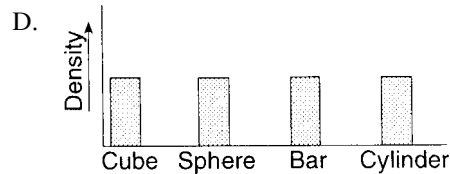
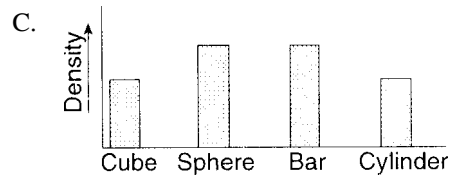
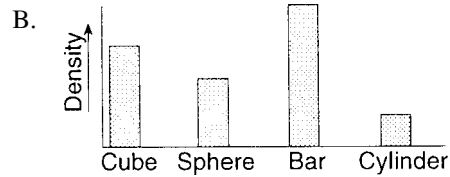
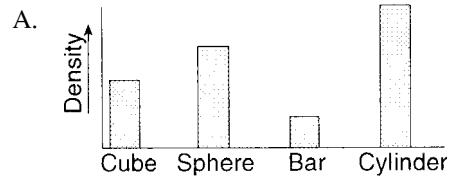
29. What is the density of the bar?

- A. 9.0 g/cm³ B. 30.0 g/cm³
 C. 3.0 g/cm³ D. 90.0 g/cm³

30. What will occur when the sphere is heated?

- A. Its mass will increase and its volume will remain the same.
 B. Its mass will decrease and its volume will remain the same.
 C. Its mass will remain the same and its volume will increase.
 D. Its mass will remain the same and its volume will decrease.

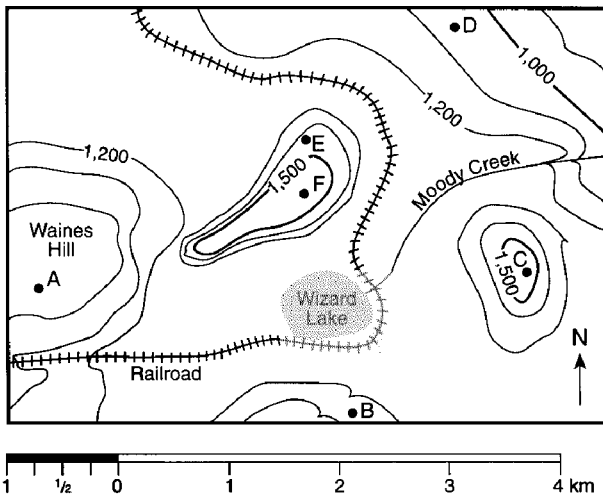
31. Which graph best represents the relative densities of the objects?



32. A student measures the mass of the cylinder as 52 grams, but the accepted value is 60 grams, as indicated in the diagram. What is the student's percentage of error (percent deviation)?

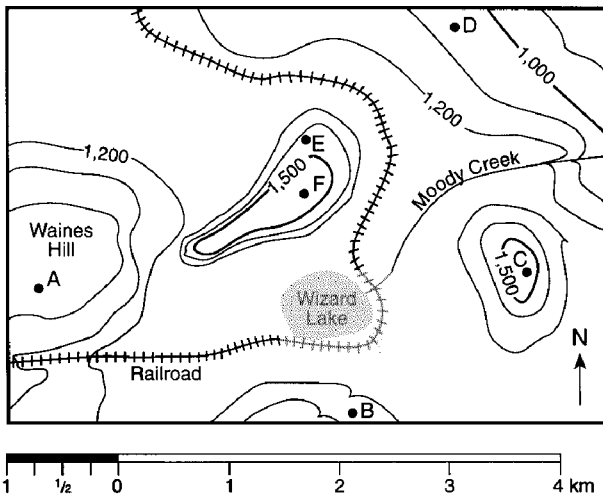
- A. 7.5% B. 8.0% C. 13.3% D. 15.4%

33. Base your answer(s) to the following question(s) on the topographic map below and on your knowledge of Earth science. Letters A through F represent locations on the map.



What is the contour interval of this map?

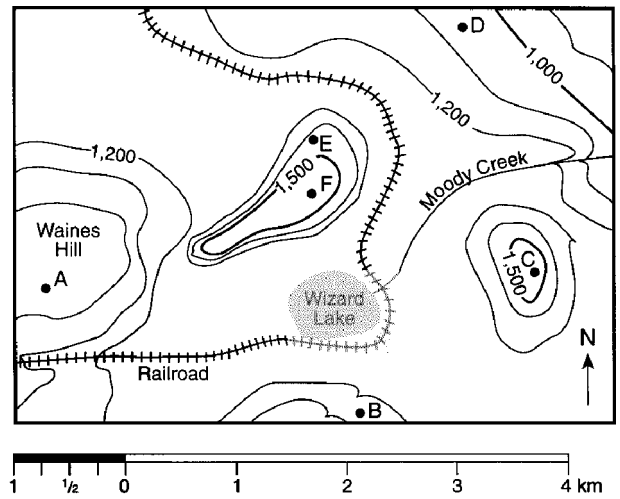
- A. 10 m B. 50 m C. 100 m D. 150 m
34. Toward which direction does Moody Creek flow?
- A. southwest B. northwest
C. northeast D. southeast
35. Base your answer(s) to the following question(s) on the Letters A through F represent locations on the map.



Which location has the lowest elevation?

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

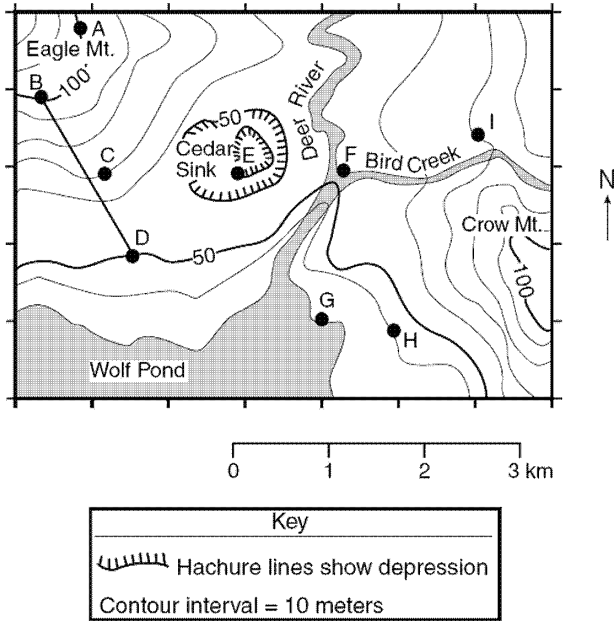
36. Base your answer(s) to the following question(s) on the topographic map below and on your knowledge of Earth science. Letters A through F represent locations on the map.



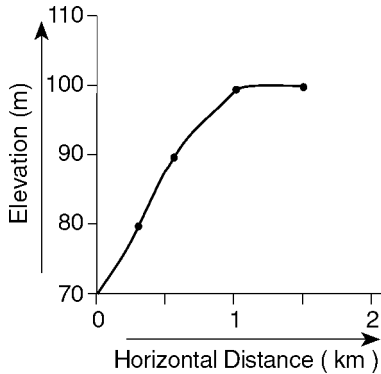
What is the approximate length of the railroad tracks shown on the map?

- A. 15 km B. 12 km C. 8 km D. 4 km

37. Base your answer(s) to the following question(s) on the 2001 edition of the *Earth Science Reference Tables*, the topographic map below, and your knowledge of Earth science. Points *A* through *I* are locations on the map. Elevations are shown in meters.



The accompanying profile represents certain locations on the map.



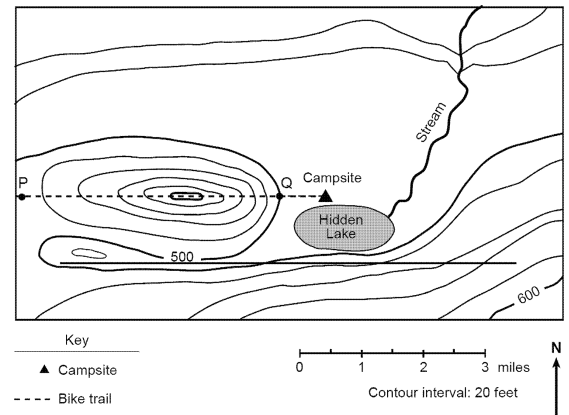
The profile represents a cross section of the landscape between points

- A. *A* and *D* B. *B* and *C*
 C. *C* and *A* D. *I* and *H*

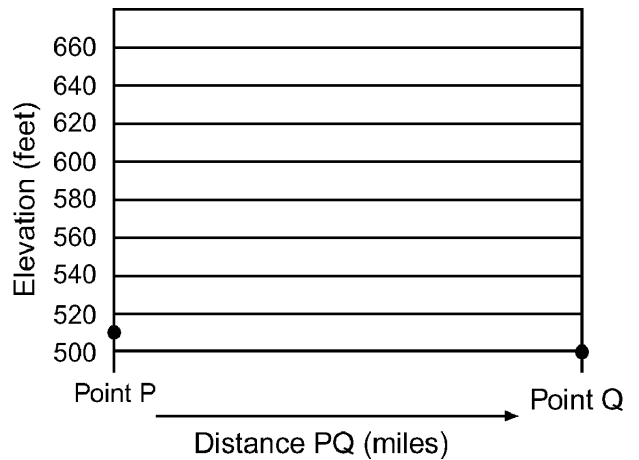
38. Base your answer(s) to the following question(s) on the reading passage and topographic map below.

A group of Earth science students decided to take an adventurous camping trip, so they rode bicycles to a New York State park that was located in an isolated area. They traveled up a steep hill. When they reached the top, they looked at the landscape and noticed a lake at the bottom of the hill. They named it Hidden Lake. To the left of Hidden Lake was a large field with a small stream. They decided to set up their campsite in the field near Hidden Lake. To get to the field, they cycled down a very steep slope.

The map below shows the location of the bicycle trail and the students' campsite. Points *P* and *Q* are reference points on the map.

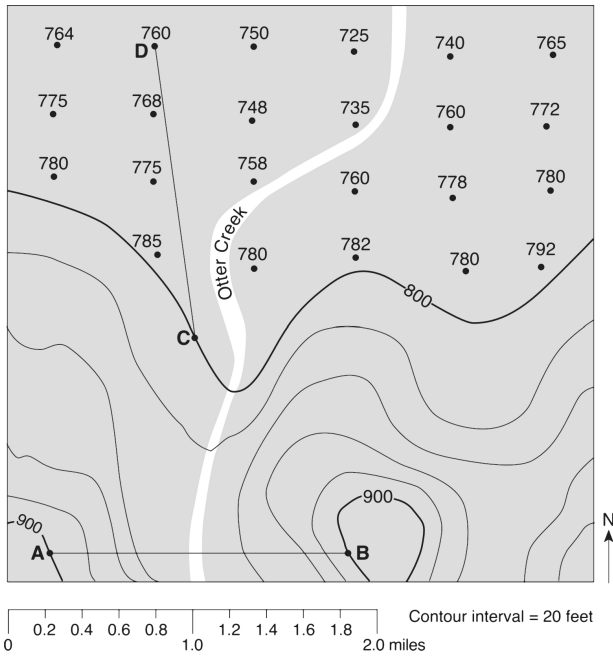


On the grid below, draw a profile of the landscape along the bicycle trail from point *P* to point *Q* by following the directions below.



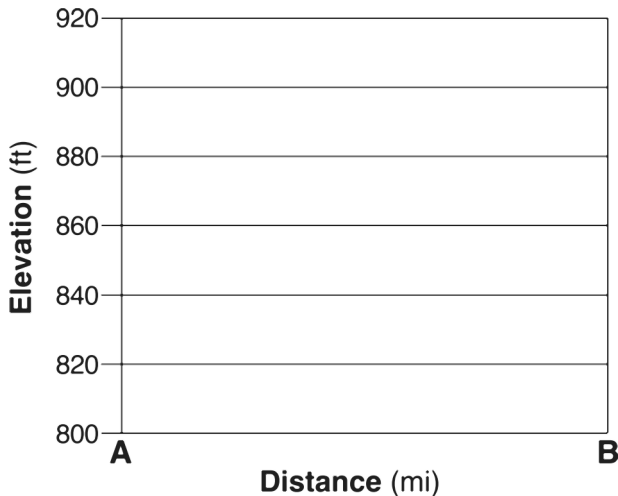
- a) Plot the elevation along line *PQ* by marking with a dot each point where a contour line is crossed by line *PQ*. Point *P* and point *Q* have been plotted for you.
- b) Connect the dots to complete the profile.

39. Base your answer(s) to the following question(s) on the map below, which shows elevations in feet at various points. The southern part of the map has contour lines representing elevations at 20-foot intervals. Lines AB and CD are reference lines on the map.

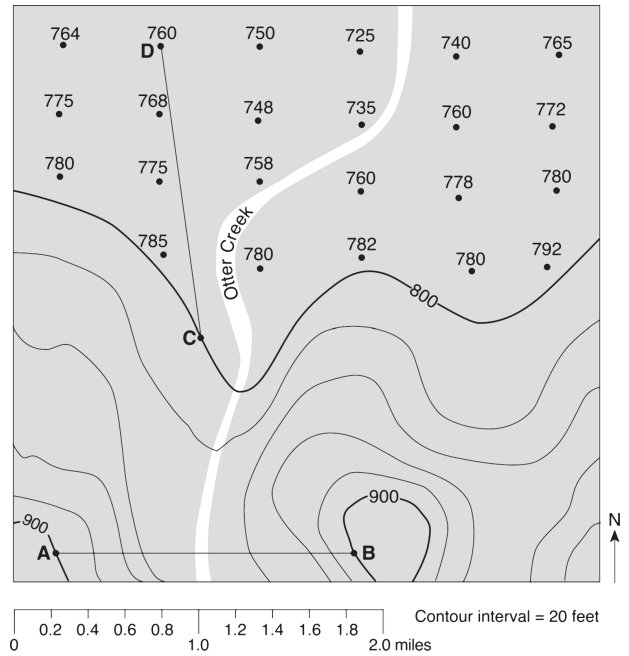


On the map above, draw contour lines for the 780-ft, 760-ft, and 740-ft elevations. Extend your contour lines to the edges of the map.

40. On the grid below, construct a topographic profile along line AB by plotting the elevation of *each* contour line that crosses line AB. Connect the plots with a line to complete the profile.



41. Base your answer(s) to the following question(s) on the map below, which shows elevations in feet at various points. The southern part of the map has contour lines representing elevations at 20-foot intervals. Lines AB and CD are reference lines on the map.



Explain how the contour lines indicate the direction of flow of Otter Creek.

42. Calculate the gradient along line CD and label your answer with the correct units.

Gradient = _____

43. The hydrosphere covers approximately what percentage of Earth's lithosphere?

A. 100% B. 70% C. 50% D. 25%