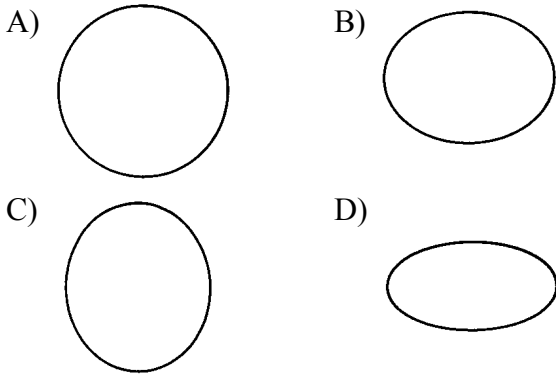
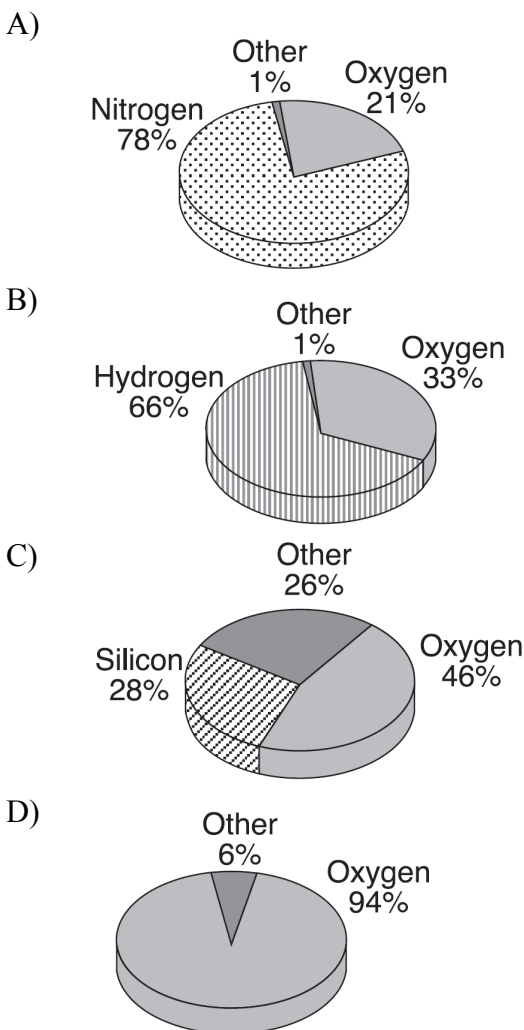


1. Precise measurements of the Earth indicate that its polar diameter is
- shorter than its equatorial diameter
 - longer than its equatorial diameter
 - the same length as its equatorial diameter

2. Which diagram most accurately shows the cross-sectional shape of the Earth drawn to scale?



3. Which pie graph correctly shows the percentage of elements by volume in Earth's troposphere?



4. Which temperature zone of Earth's atmosphere contains the most water vapor?

- mesosphere
- stratosphere
- thermosphere
- troposphere

5. An air temperature of 95°C most often exists in which layer of the atmosphere?

- troposphere
- stratosphere
- mesosphere
- thermosphere

6. Which element is most abundant in Earth's lithosphere?

- oxygen
- silicon
- hydrogen
- nitrogen

7. The data table below shows the origin depths of all large-magnitude earthquakes over a 20-year period.

Data Table

Depth Below Surface (km)	Number of Earthquakes
0–33	27,788
34–100	17,585
101–300	7,329
301–700	3,167

According to these data, most of these earthquakes occurred within Earth's

- lithosphere
- asthenosphere
- stiffer mantle
- outer core

8. The angle of the star *Polaris* above the northern horizon can be used to determine an observer's

- latitude
- longitude
- solar time
- local time

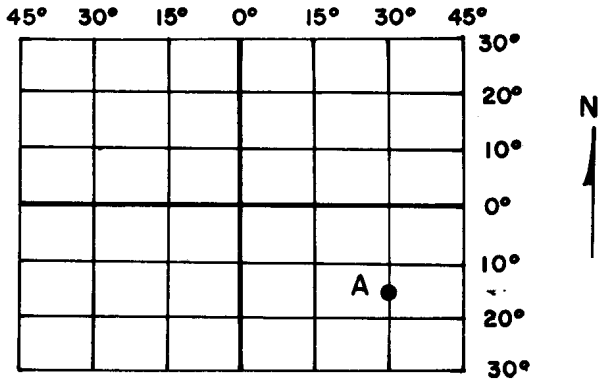
9. A person knows the solar time on the Prime Meridian and the local solar time. What determination can be made?

- the date
- the altitude of *Polaris*
- the longitude at which the person is located
- the latitude at which the person is located

10. What could be the approximate location of an observer if he measured the altitude of Polaris to be 41 degrees above the horizon?

- A) Watertown
- B) Massena
- C) Buffalo
- D) New York City

11. The diagram below represents a portion of a map of the Earth's grid system. What is the approximate latitude and longitude of point A?

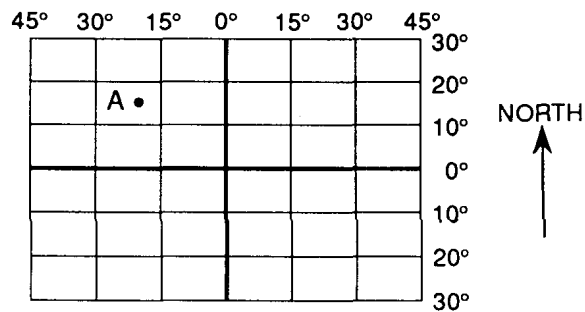


- A) 15°N. 30°W.
- B) 15°S. 30°W.
- C) 15°N. 30°E.
- D) 15°S. 30°E.

12. Since Denver's longitude is 105° W and Utica's longitude is 75° W, sunrise in Denver occurs

- A) 2 hours earlier
- B) 2 hours later
- C) 3 hours earlier
- D) 3 hours later

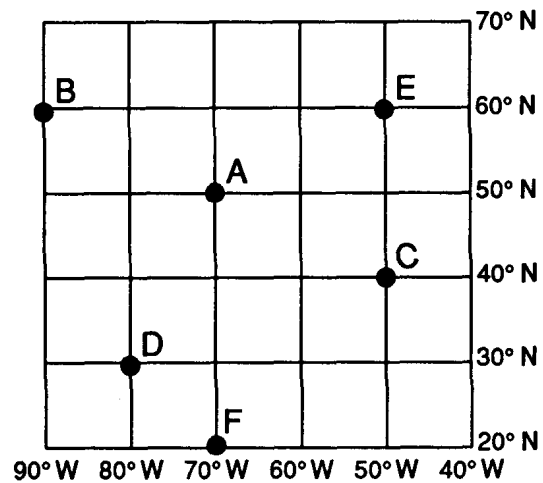
13. The diagram below represents a portion of the Earth's latitude and longitude system.



What are the approximate latitude and longitude of point A?

- A) 15° S 20° W
- B) 15° S 20° E
- C) 15° N 20° W
- D) 15° N 20° E

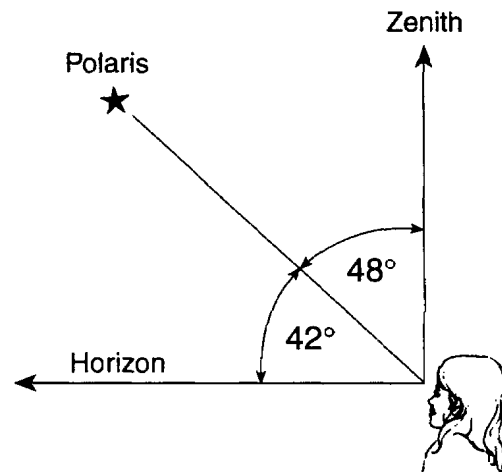
14. Base your answer to the following question on the latitude and longitude system shown below. The map represents a part of the Earth's surface and its latitude-longitude coordinates. Points A through F represent locations in this area.



How are latitude and longitude lines drawn on a globe of the Earth?

- A) Latitude lines are parallel and longitude lines meet at the poles.
- B) Latitude lines are parallel and longitude lines meet at the Equator.
- C) Longitude lines are parallel and latitude lines meet at the poles.
- D) Longitude lines are parallel and latitude lines meet at the Equator.

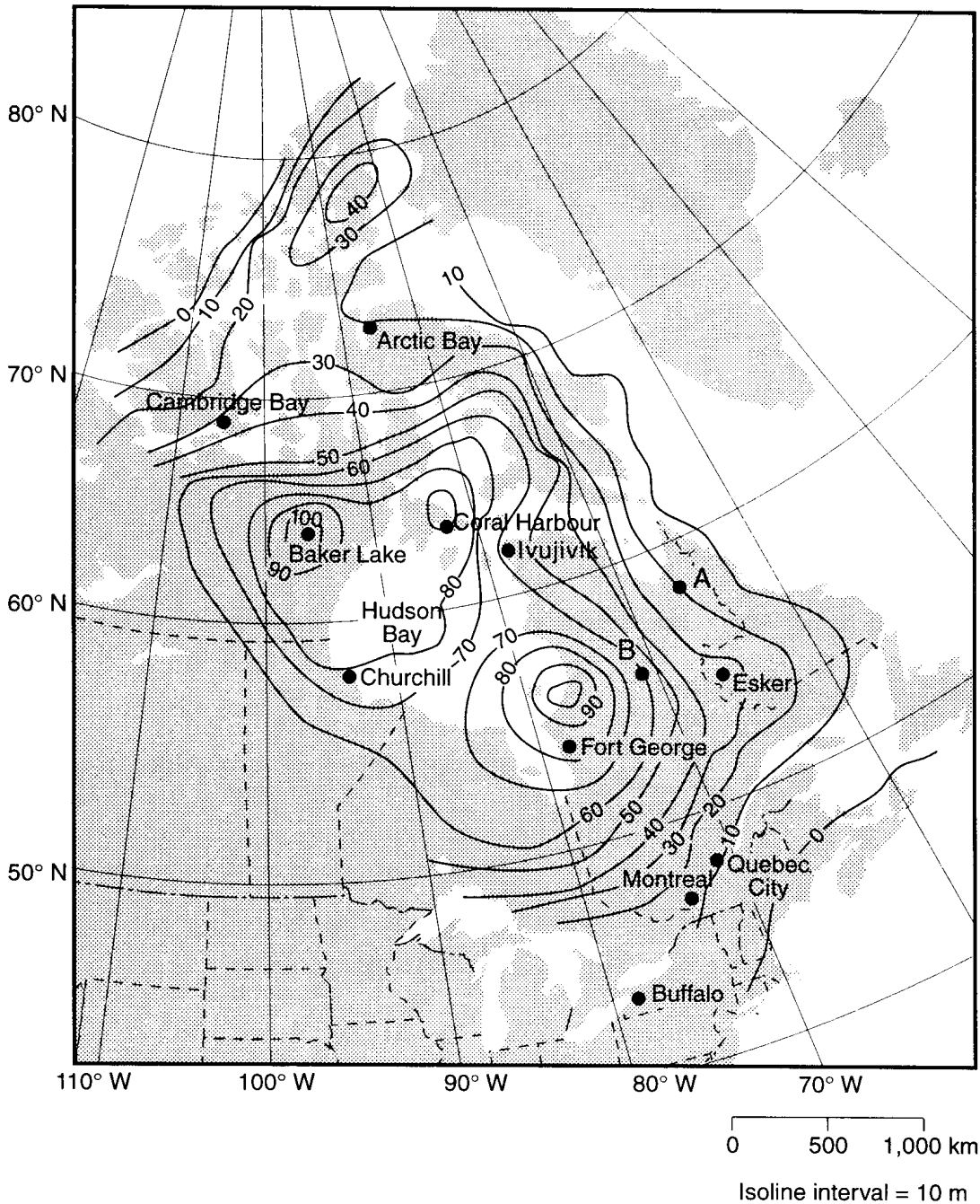
15. The diagram below shows a student in New York State observing *Polaris*.



The student is located nearest to which city in New York State?

- A) Plattsburgh
- B) Albany
- C) New York City
- D) Kingston

16. Base your answer to the following question on the map below. The isolines on the map show the increases in elevation that have occurred since the end of the ice age in this part of North America. *A* and *B* are two points on isolines. Several towns within the area are indicated.



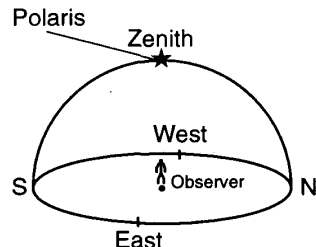
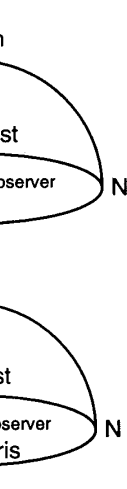
What is the approximate latitude and longitude of Fort George?

- A) 54° N 78° W B) 66° N 82° W C) 78° N 54° W D) 82° N 66° W

17. 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

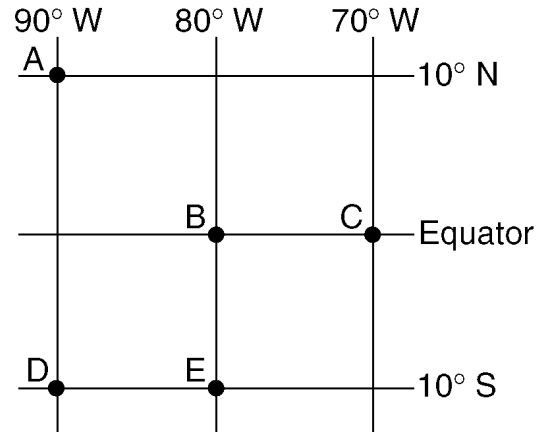
18. Which diagram best represents the location of *Polaris* for an observer located at the Equator?

- A) 
- B) 
- C)
- D)

19. 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

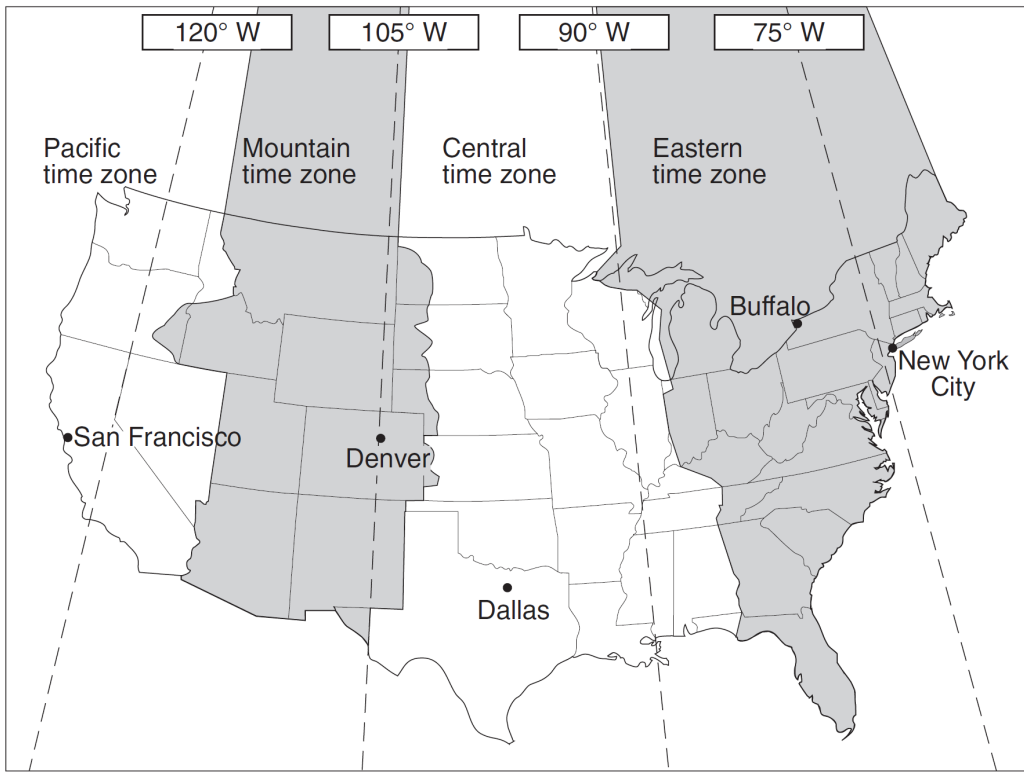
20. Base your answer to the following question on the map below, which shows the latitude and longitude of five observers, *A*, *B*, *C*, *D*, and *E*, on Earth.



Which two observers would be experiencing the same apparent solar time?

- A) *A* and *C* B) *B* and *C*
 C) *B* and *E* D) *D* and *E*

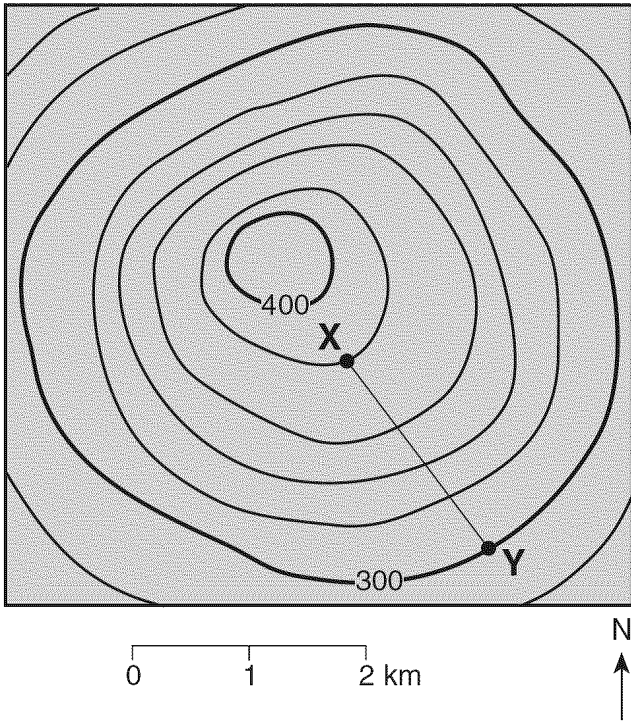
21. Base your answer to the following question on the United States time zone map shown below. The dashed lines represent meridians (lines of longitude).



If the time in Buffalo, New York, is 5 a.m., what time would it be in San Francisco, California?

- A) 8 a.m.
- B) 2 a.m.
- C) 3 a.m.
- D) 4 a.m.

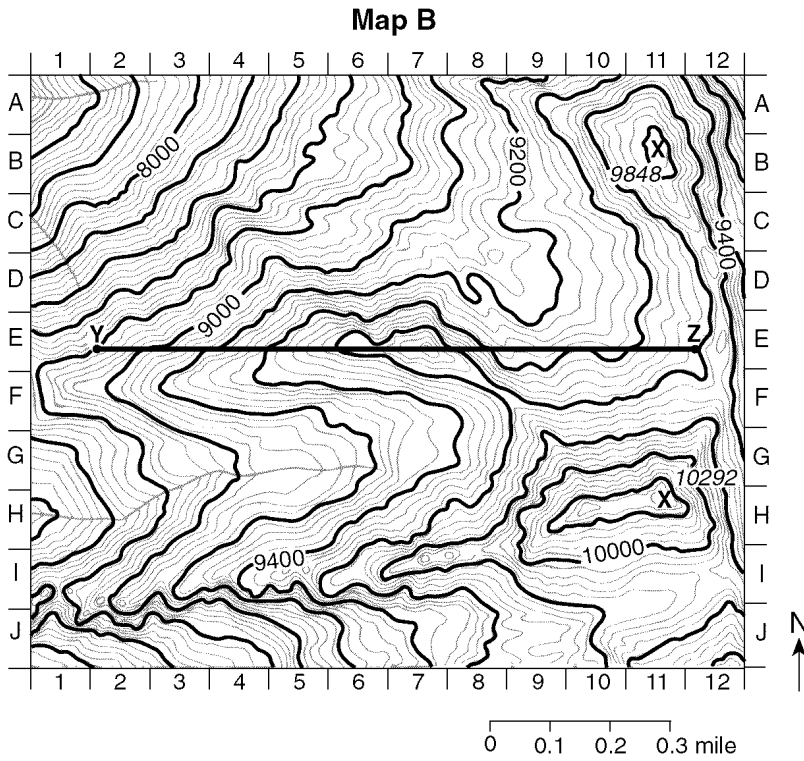
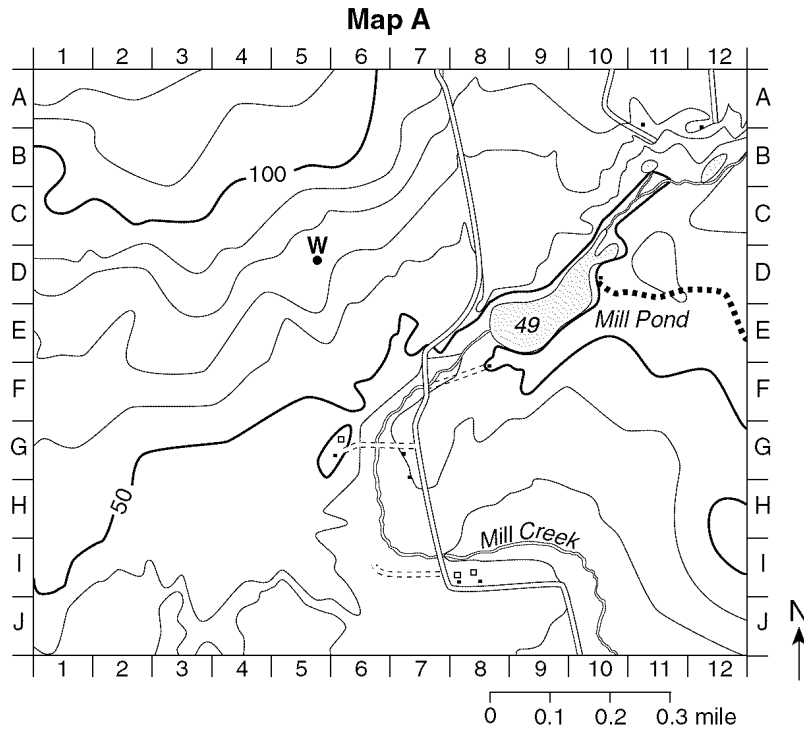
22. The topographic map below shows a hill. Points X and Y represent locations on the hill's surface. Elevations are shown in meters.



What is the gradient between points X and Y ?

- A) 40 m/km B) 80 m/km
C) 100 m/km D) 120 m/km

23. Base your answer to the following question on the two topographic maps below. A grid system of numbers and letters appears along the edge of each map to help locate features. Both maps show elevations in feet above sea level.

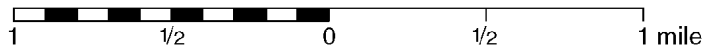
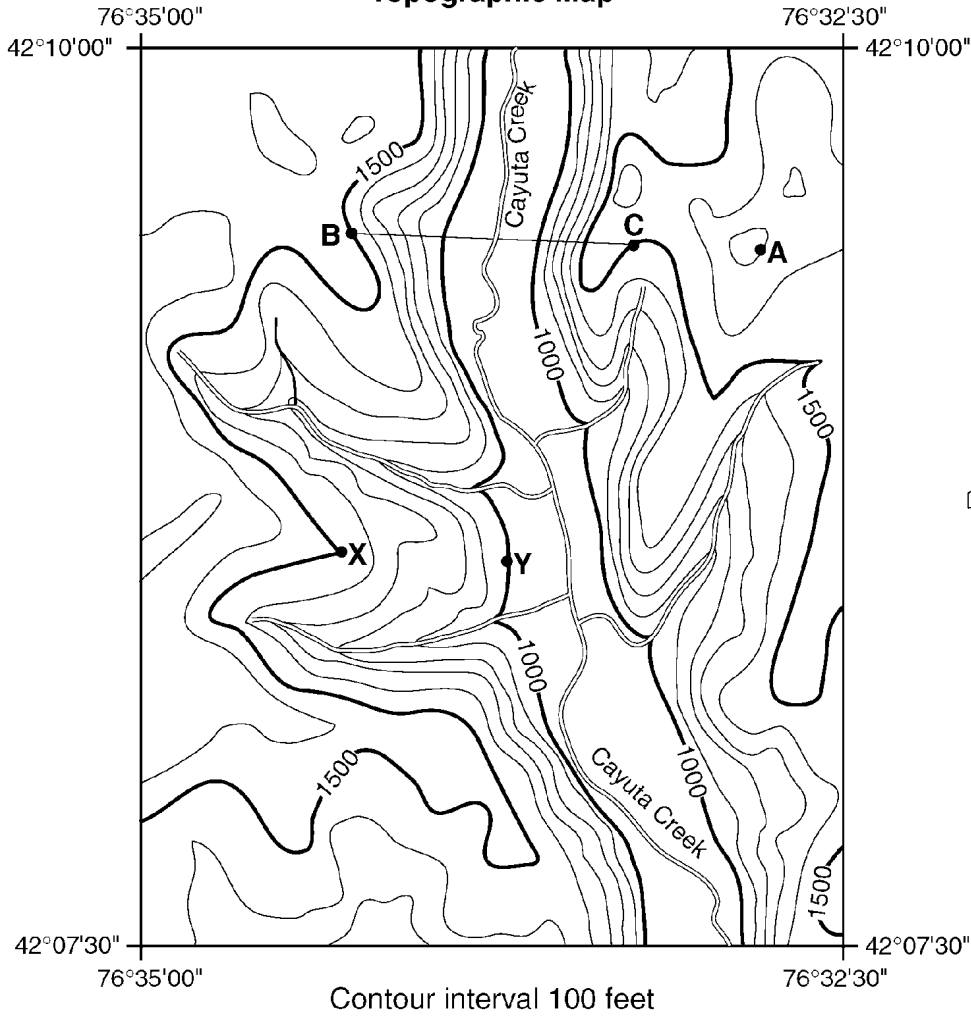


On map *B*, what is the approximate straight-line distance from the center of the X within grid area B-11 to the center of the X within grid area H-11?

- A) 0.3 mi
- B) 0.6 mi
- C) 1.2 mi
- D) 1.5 mi

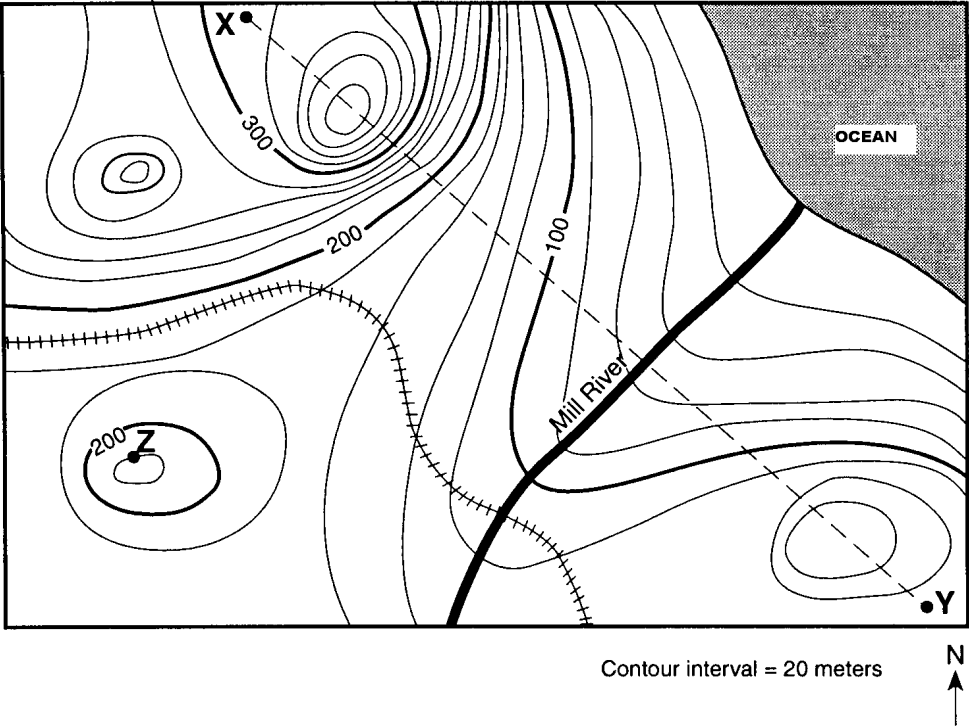
Base your answers to questions 24 and 25 on the maps below. Points *A*, *B*, *C*, *X*, and *Y* are locations on the topographic map. The small map identifies the New York State region shown in the topographic map.

Topographic Map



24. What is the approximate gradient between point *X* and point *Y*?
- A) 100 ft/mi B) 250 ft/mi C) 500 ft/mi D) 1,000 ft/mi
25. What is the elevation of point *A* on the topographic map?
- A) 1,700 ft B) 1,650 ft C) 1,600 ft D) 1,550 ft

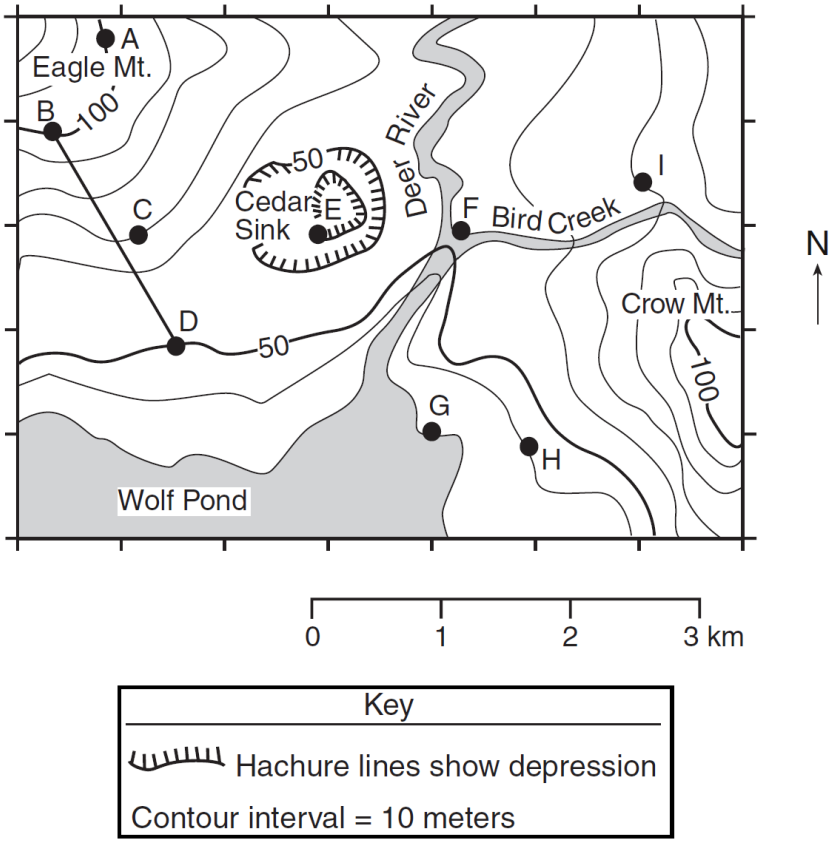
26. Base your answer to the following question on the topographic map below. Points X, Y, and Z are locations on the map. Elevations are expressed in meters.



Mill River generally flows toward the

- A) southeast
- B) southwest
- C) northeast
- D) northwest

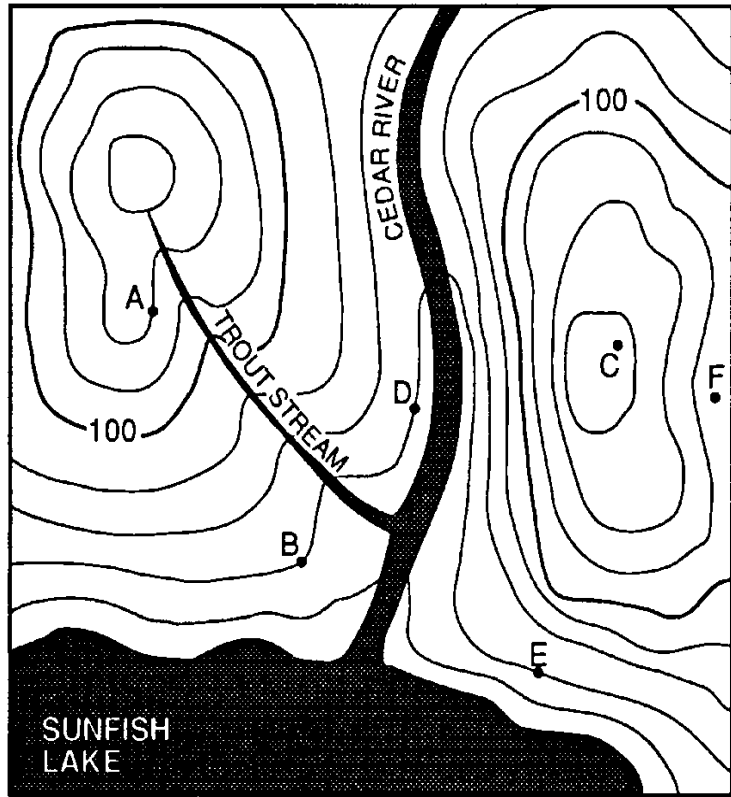
27. Base your answer to the following question on the topographic map below. Points *A* through *I* are locations on the map. Elevations are shown in meters.



Which locations have the same elevation?

- A) *A* and *C* B) *B* and *E* C) *C* and *I* D) *F* and *G*

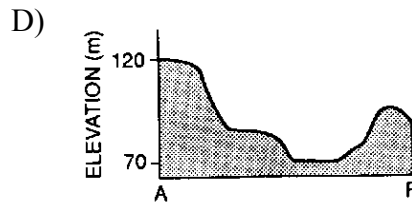
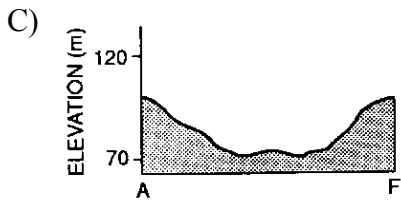
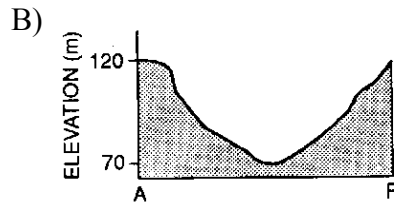
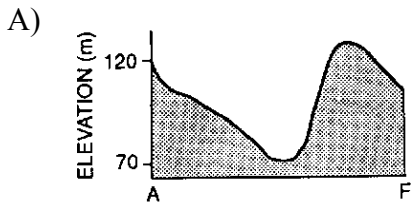
28. Base your answer to the following question on the contour map below. Points *A* through *F* represent locations on the map.



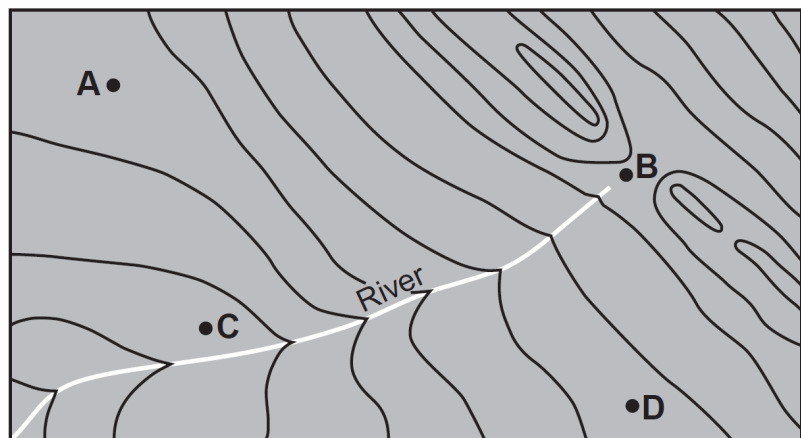
0 1 2
SCALE (km)
Contour Interval = 10 meters

NORTH
↑

Which diagram best represents the topographic profile from location *A* to location *F*?



29. Four locations, *A*, *B*, *C*, and *D*, are represented on the topographic map below.



Which lettered location has the highest elevation?

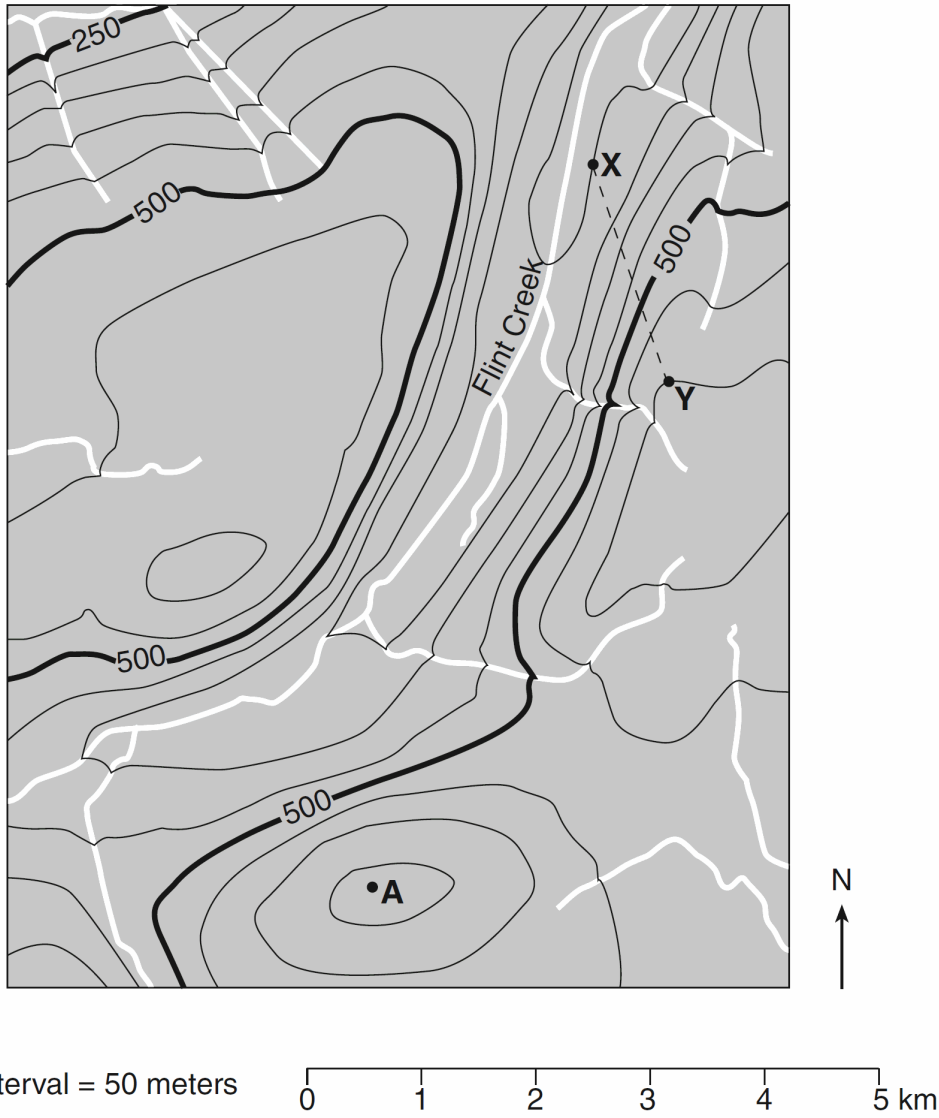
A) *A*

B) *B*

C) *C*

D) *D*

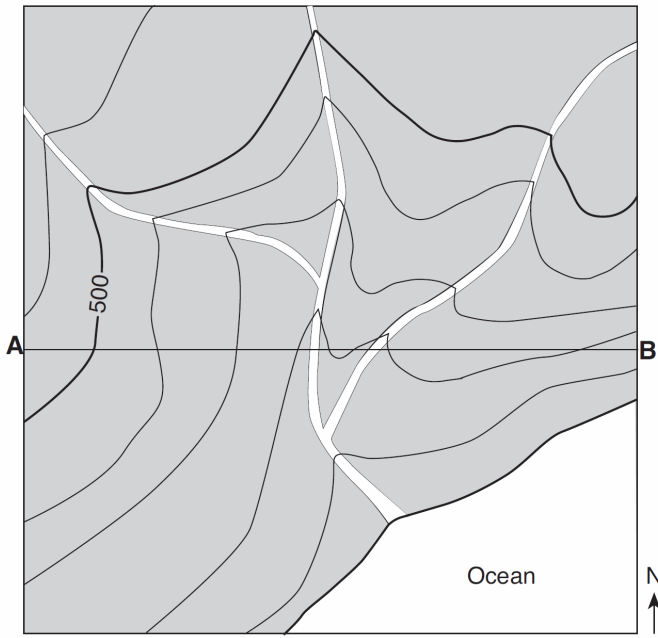
30. Base your answer to the following question on the topographic map below. Points *A*, *X*, and *Y* are reference points on the map.



In which general direction does Flint Creek flow?

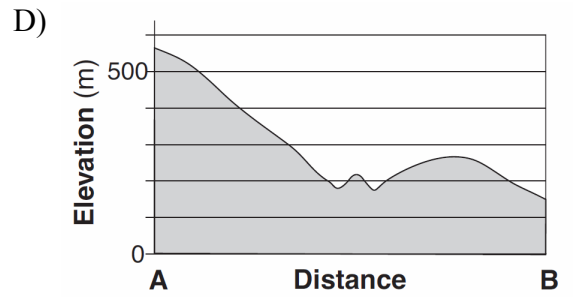
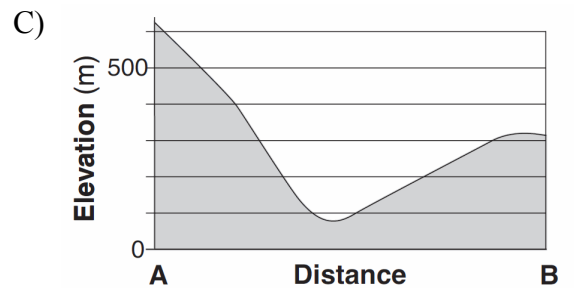
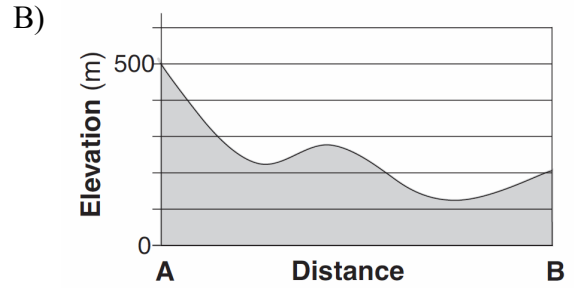
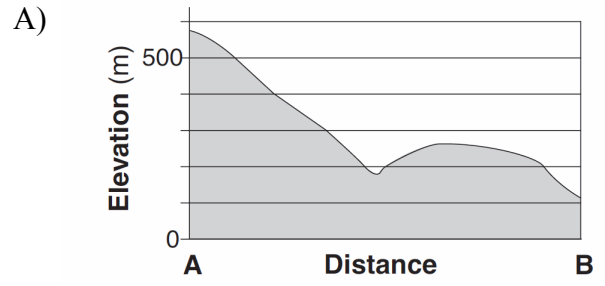
- A) southwest B) southeast C) northwest D) northeast

31. The contour map below shows elevations recorded in meters. Line *AB* is a reference line on the map.

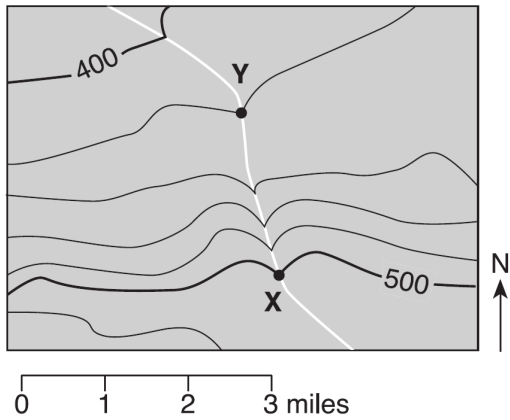


Contour interval = 100 m

Which graph best represents the profile from point *A* to point *B*?



32. The topographic map below shows a stream crossing several contour lines and passing through points *X* and *Y*. Elevations are measured in feet.

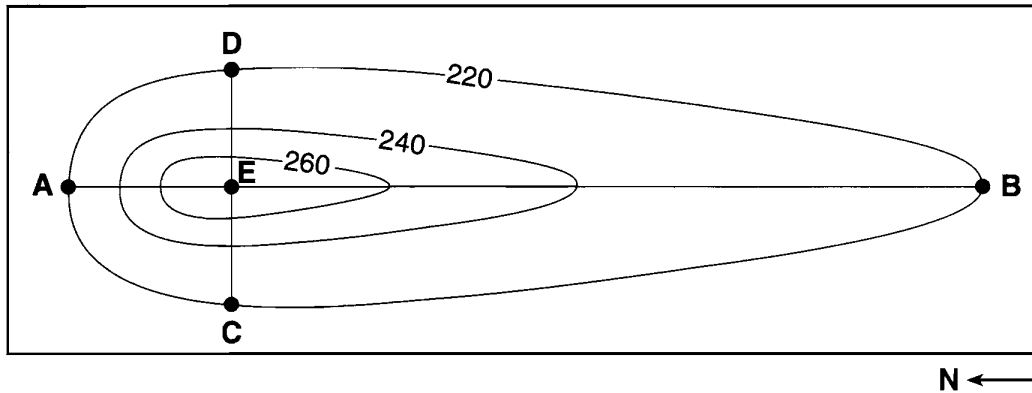


What is the approximate gradient between point *X* and point *Y*?

- A) 10 ft/mi B) 20 ft/mi
C) 40 ft/mi D) 80 ft/mi

33. Base your answer to the following question on the contour map below, which shows a hill formed by glacial deposition near Rochester, New York. Letters *A* through *E* are reference points. Elevations are in feet.

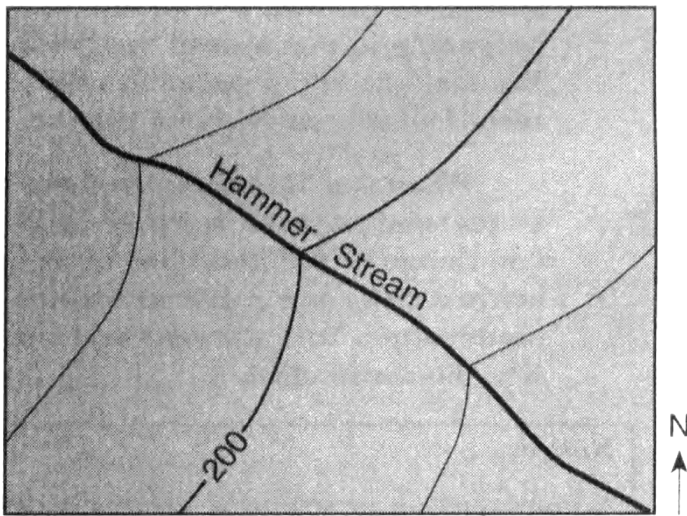
Contour Map



Which description best compares the gradients of this hill?

- A) *AE* and *EB* have the same gradient. B) *AE* has a steeper gradient than *EB*.
C) *CE* has a steeper gradient than *ED*. D) *CE* and *AE* have the same gradient.

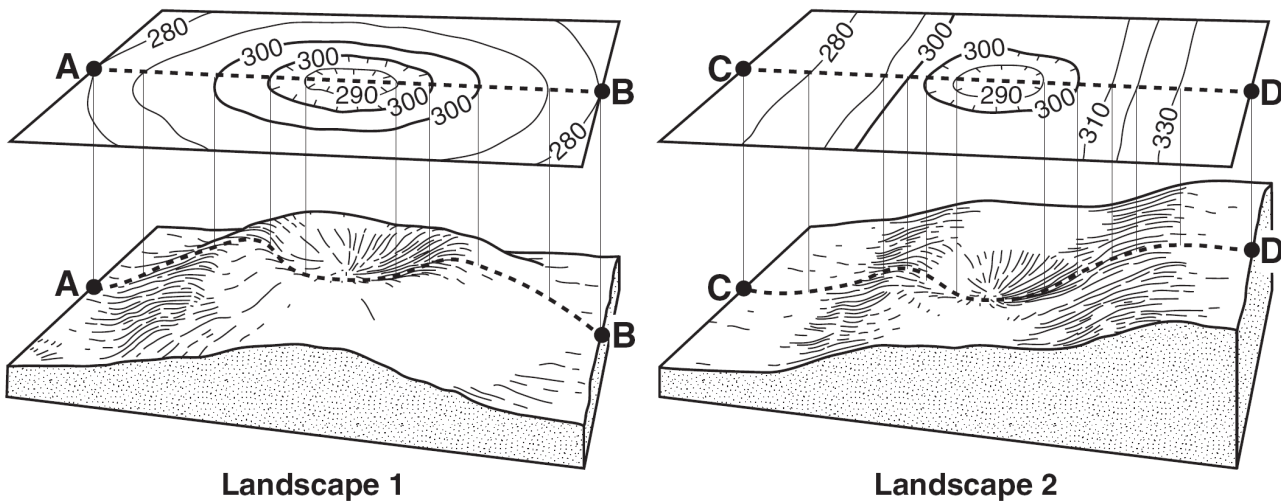
34. The topographic map below shows part of a stream.



In which general direction is the stream flowing?

- A) northeast
- B) northwest
- C) southeast
- D) southwest

35. Base your answer to the following question on the topographic maps and block diagrams of two landscape regions shown below. The block diagrams show a three-dimensional view of the topographic maps directly above them. Elevations are measured in feet. Points *A*, *B*, *C*, and *D* are locations on Earth's surface.



Which contour interval is used on both topographic maps?

- A) 10 ft
- B) 20 ft
- C) 30 ft
- D) 40 ft

