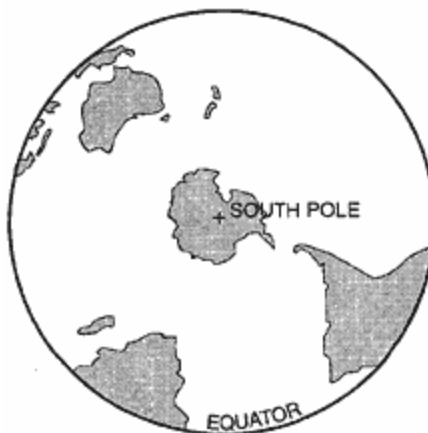


Topic 2 - Measuring the Earth

1. The ozone layer protects life on Earth by absorbing harmful ultraviolet radiation. The ozone layer is located between 17 kilometers and 35 kilometers above Earth's surface in which atmospheric temperature zone?
A) troposphere B) stratosphere
C) mesosphere D) thermosphere
2. In which two Earth regions is oxygen the second most abundant element by volume?
A) crust and hydrosphere
B) hydrosphere and troposphere
C) troposphere and core
D) core and crust
3. What is the approximate percent of oxygen by volume present in Earth's lower atmosphere?
A) 21% B) 33% C) 46% D) 94%
4. The hydrosphere covers approximately what percentage of Earth's lithosphere?
A) 100% B) 70% C) 50% D) 25%

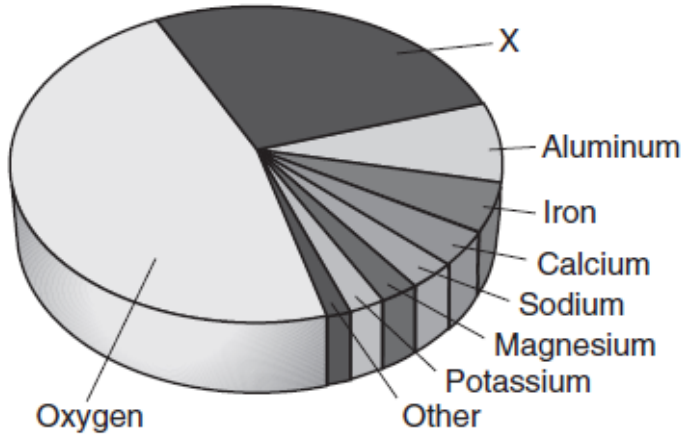
5. The maps below show the Earth as viewed from above the North Pole and from above the South Pole.



Which statement is best supported by these maps?

- A) Most of the Earth's surface is land.
 - B) Most of the Earth's landmass is in the Northern Hemisphere.
 - C) The geographic North Pole is the south magnetic pole.
 - D) The geographic North Pole is the north magnetic pole.
6. Which two elements make up the greatest percentages by mass in Earth's crust?
A) oxygen and potassium
B) oxygen and silicon
C) aluminum and potassium
D) aluminum and silicon

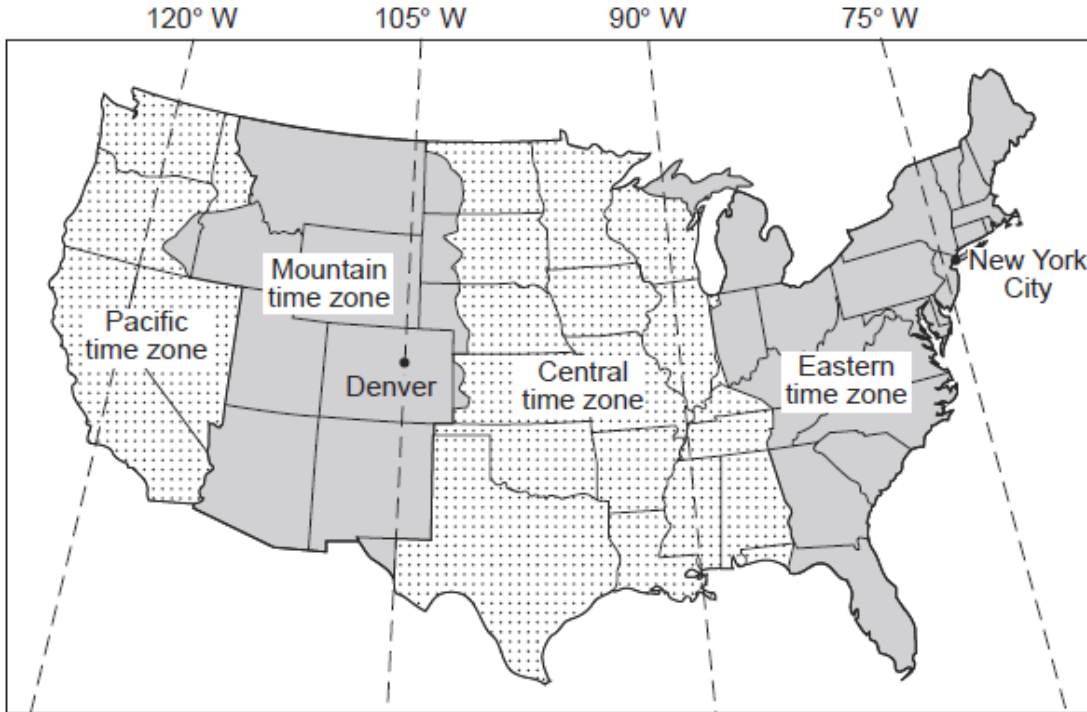
-
7. The pie graph below shows the elements comprising Earth's crust in percent by mass.



Which element is represented by the letter *X*?

- A) silicon B) lead
C) nitrogen D) hydrogen
8. The altitude of *Polaris* measured by an observer at the Tropic of Cancer is
- A) 15° B) 23.5° C) 66.5° D) 90°
9. New York State's highest peak, Mt. Marcy, is located at approximately
- A) 44°10' N 74°05' W B) 44°05' N 73°55' W
C) 73°55' N 44°10' W D) 74°05' N 44°05' W

10. The map below shows four major time zones of the United States. The dashed lines represent meridians of longitude. The locations of New York City and Denver are shown.



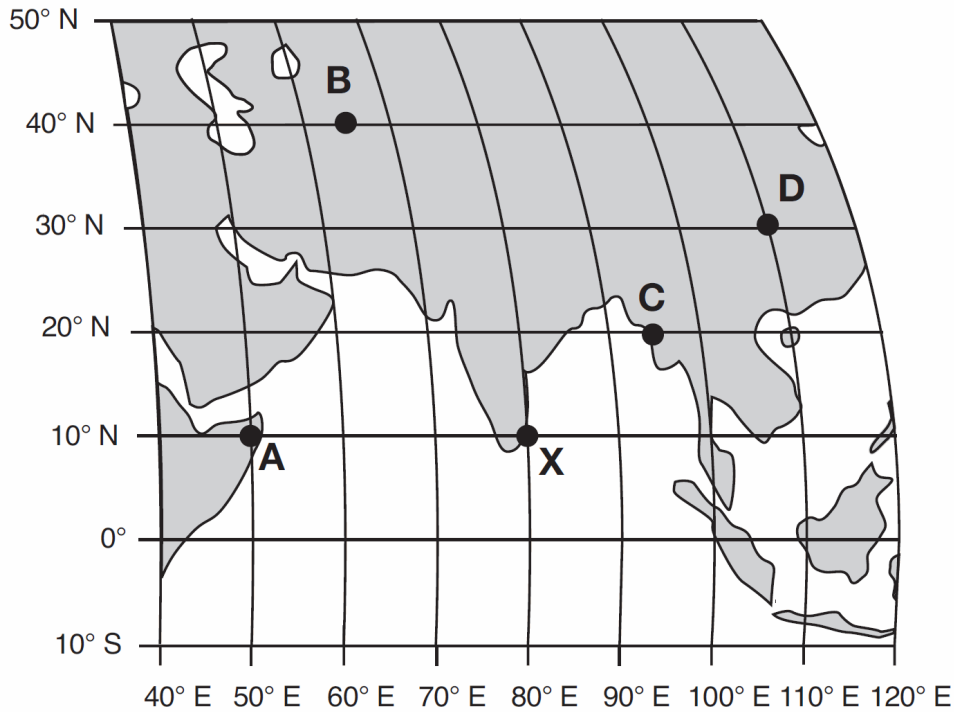
What is the time in New York City when it is noon in Denver?

- A) 10 a.m. B) 2 p.m. C) 3 p.m. D) noon

11. Which New York State city is located at $42^{\circ}39' N$
 $73^{\circ}45' W$?

- A) Buffalo B) Albany
C) Ithaca D) Plattsburgh

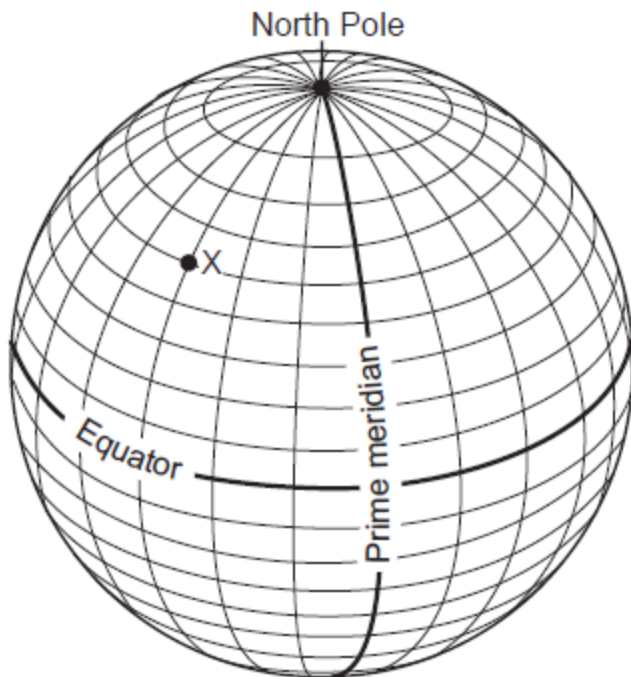
12. The map below shows a portion of Earth's system of latitude and longitude and five surface locations labeled *A*, *B*, *C*, *D*, and *X*.



It is solar noon at location *X*. At which location will solar noon next occur?

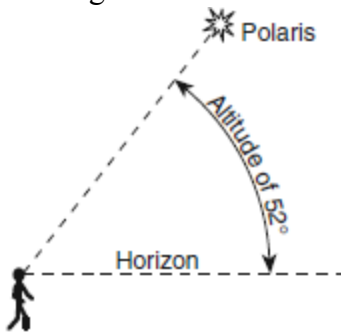
- A) *A* B) *B* C) *C* D) *D*
-
13. Which New York State location has surface bedrock that has been subjected to very intense regional metamorphism?
- A) 41°00' N 72°15' W B) 42°30' N 75°00' W
C) 44°00' N 76°00' W D) 44°30' N 74°00' W
14. What is the approximate altitude of *Polaris* at Syracuse, New York?
- A) 43° B) 47° C) 76° D) 90°

15. The diagram below shows latitude measurements every 10 degrees and longitude measurements every 15 degrees.



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

- A) 40° S 45° E B) 50° N 45° W
C) 60° S 30° W D) 75° N 30° E
16. The diagram below shows an observer on Earth viewing the star *Polaris*.



What is the observer's latitude?

- A) 38° N B) 38° S
C) 52° N D) 52° S

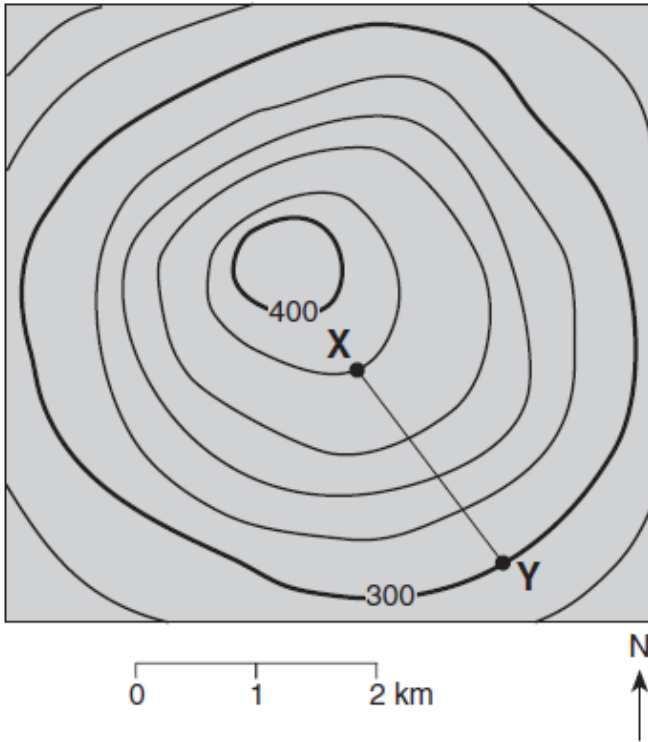
17. Base your answer to the following question on " the isoline map below, which shows the average yearly precipitation, in inches, across New York State.



"
Approximately how many inches of average yearly precipitation does Rochester, New York, receive?

- A) 26 B) 30 C) 38 D) 42

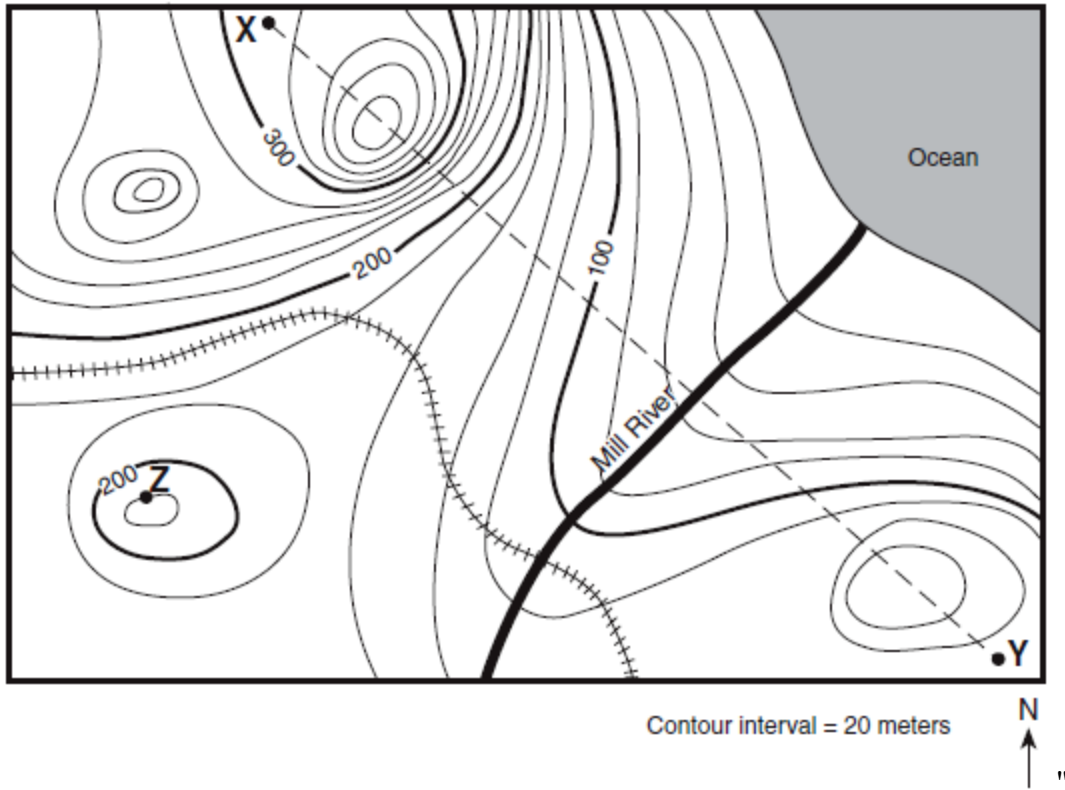
18. The topographic map below shows a hill. Points X and Y represent locations on the hill's surface. Elevations are shown in meters.



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

Base your answers to questions 19 and 20 on the topographic map below. Points X, Y, and Z are locations on the map. Elevations are expressed in meters.



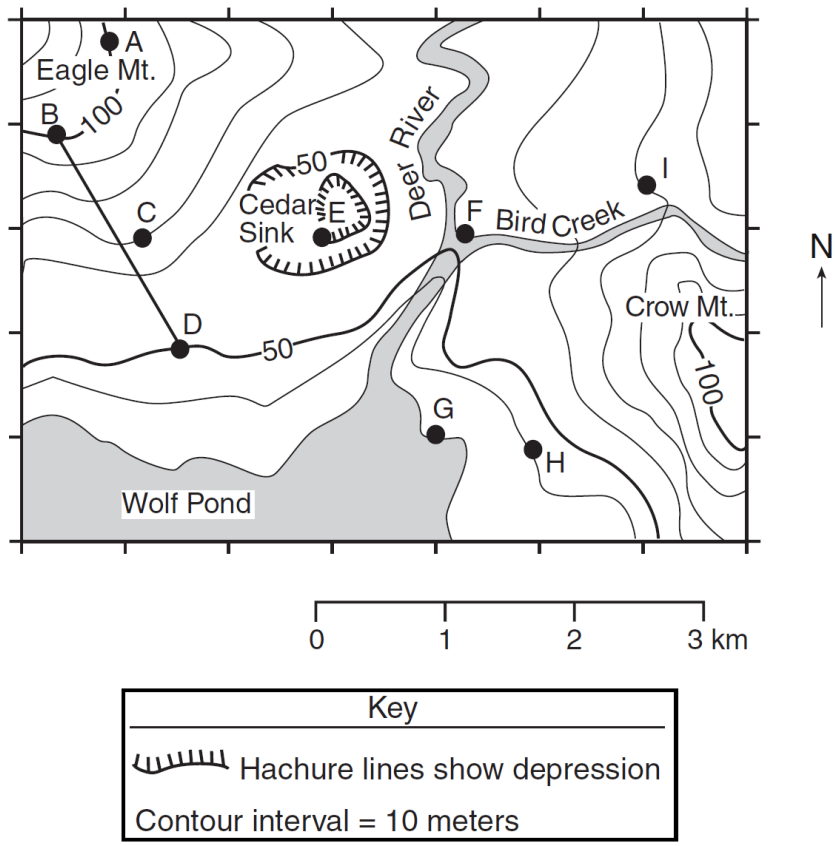
19. What is the elevation of point Z?

- A) 190 m
- B) 220 m
- C) 240 m
- D) 250 m

20. Mill River generally flows toward the

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

Base your answers to questions 21 and 22 on " the topographic map below. Points *A* through *I* are locations on the map. Elevations are shown in meters.



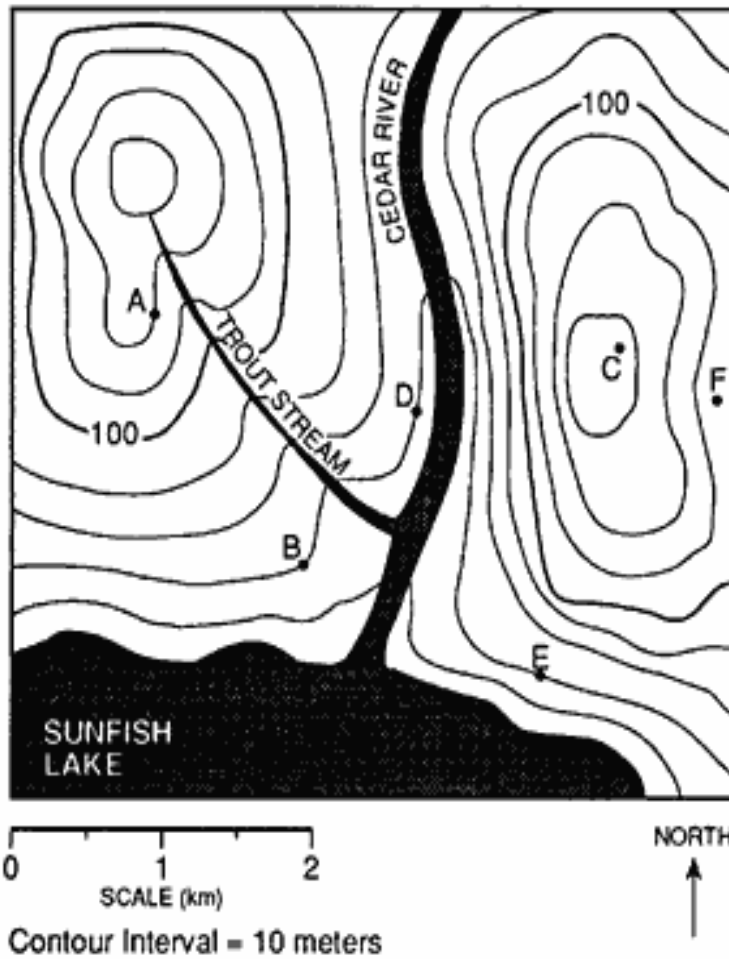
21. Which locations have the same elevation?

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

22. In which section of the map is the highest elevation located?

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

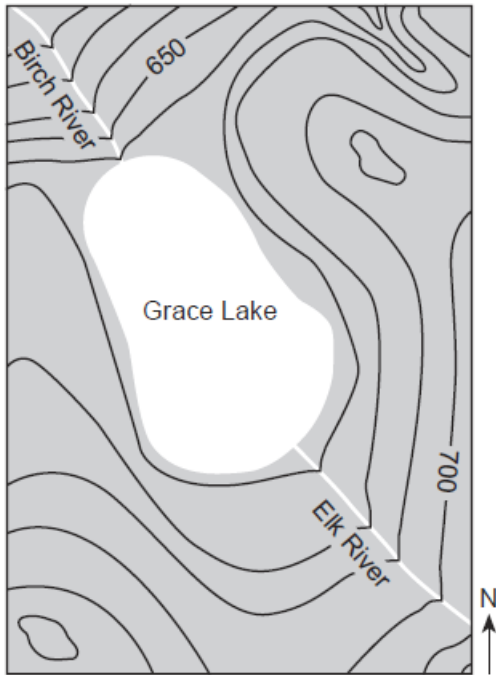
23. Base your answer to the following question on "the contour map below. Points *A* through *F* represent locations on the map.



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

- A) Profile A shows a high elevation at point A (approx. 110m), a deep valley (approx. 70m), a high peak (approx. 120m), and a moderate elevation at point F (approx. 100m).
- B) Profile B shows a high elevation at point A (approx. 110m), a deep valley (approx. 70m), a low peak (approx. 80m), and a high elevation at point F (approx. 110m).
- C) Profile C shows a high elevation at point A (approx. 110m), a deep valley (approx. 70m), a low peak (approx. 80m), and a moderate elevation at point F (approx. 100m).
- D) Profile D shows a high elevation at point A (approx. 110m), a deep valley (approx. 70m), a low peak (approx. 80m), and a low elevation at point F (approx. 70m).

24. The contour map below shows a lake and river system. The Birch and Elk Rivers carry an equal volume of water.



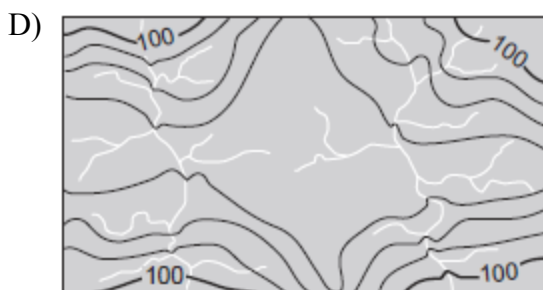
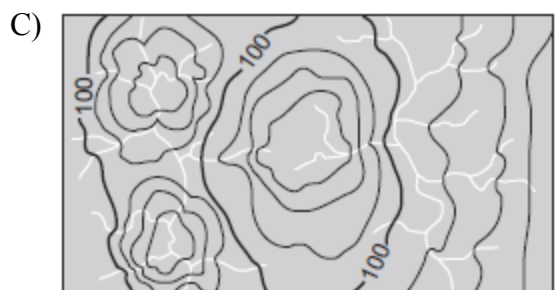
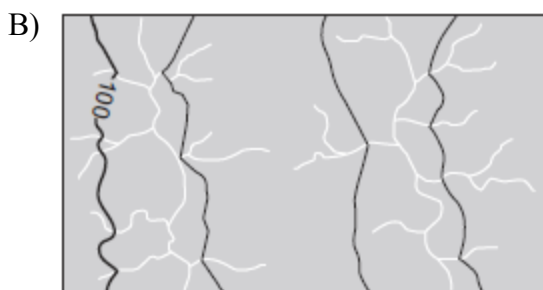
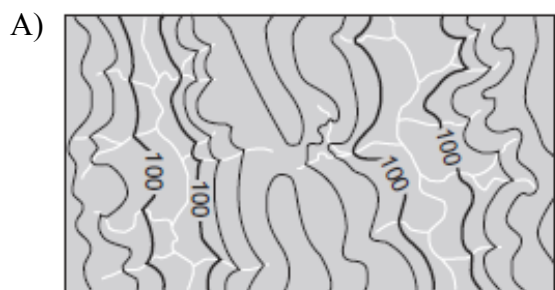
Compared to the Elk River, the Birch River can best be described as flowing

- A) faster, and in the same general compass direction
- B) faster, and in the opposite general compass direction
- C) slower, and in the same general compass direction
- D) slower, and in the opposite general compass direction

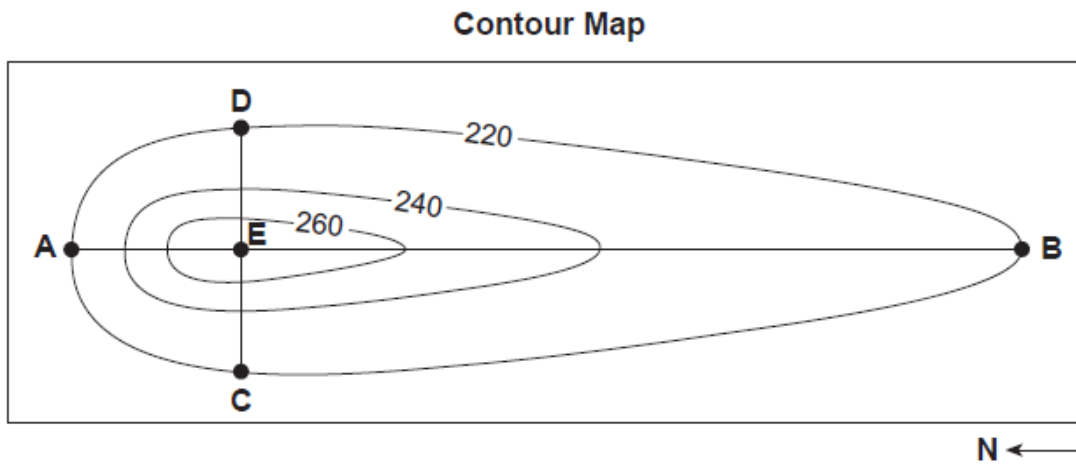
25. The map below shows part of a stream drainage pattern.



Which topographic map best shows the contour lines for this stream drainage pattern?



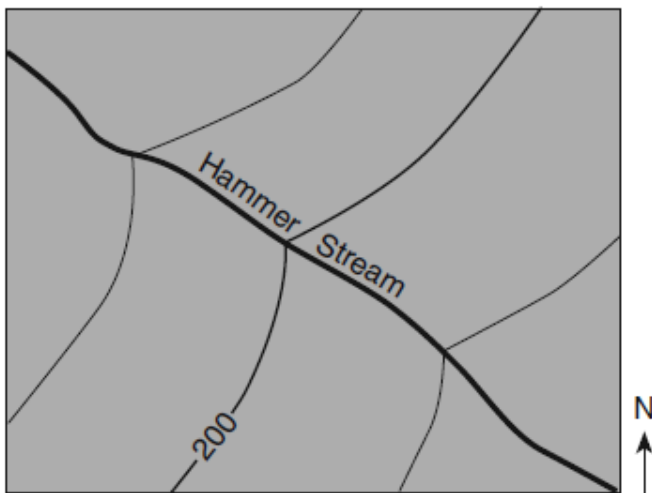
26. Base your answer to the following question on the contour map below, which shows a hill formed by glacial deposition near Rochester, New York. Letters *A* through *E* are reference points. Elevations are in feet.



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.

27. 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