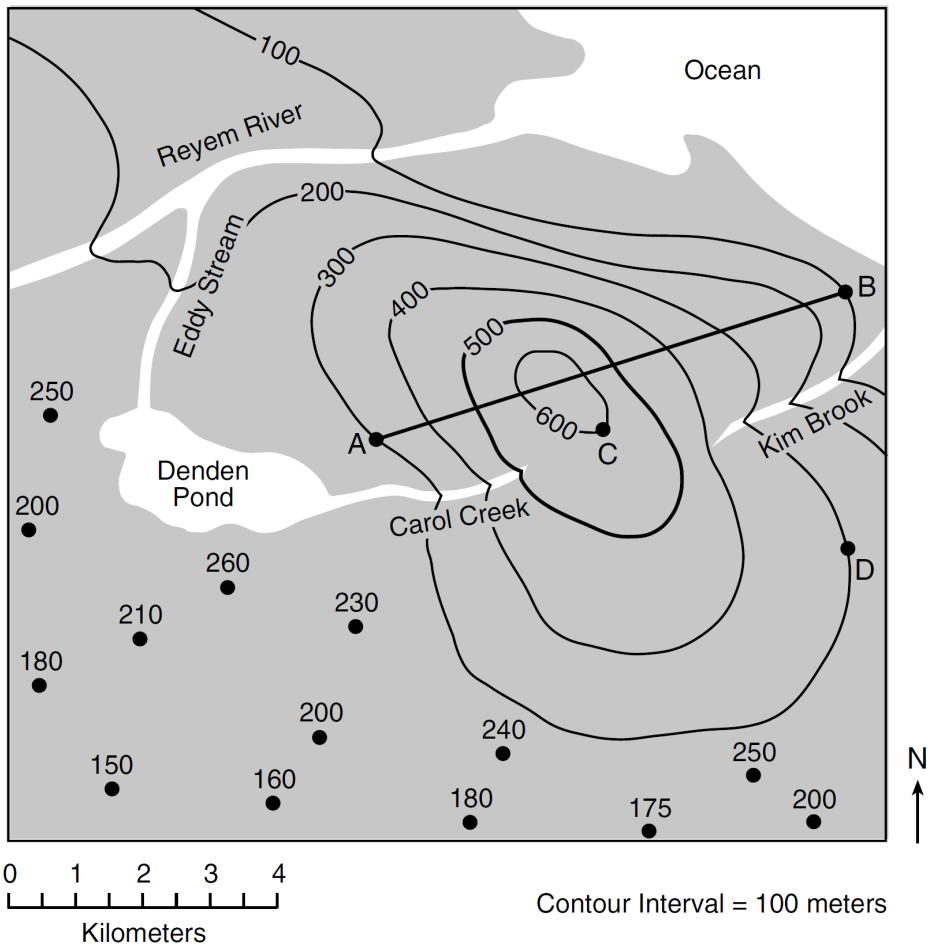
Name

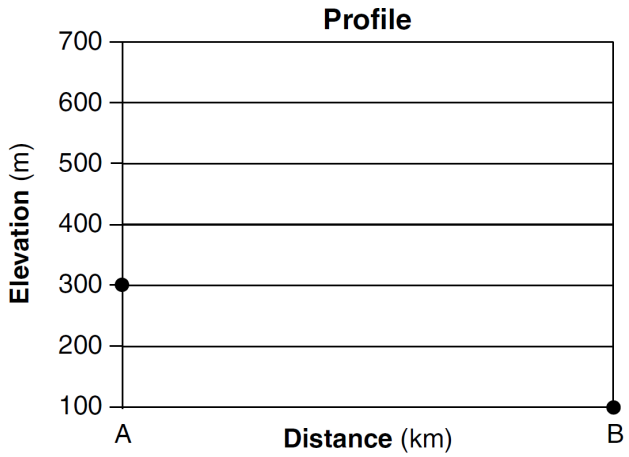
Base your answers to questions **1** through **3** on the topographic map in your answer booklet and on your knowledge of Earth science. Points *A, B, C*, and *D* represent locations on Earth's surface. Elevations are measured in meters.



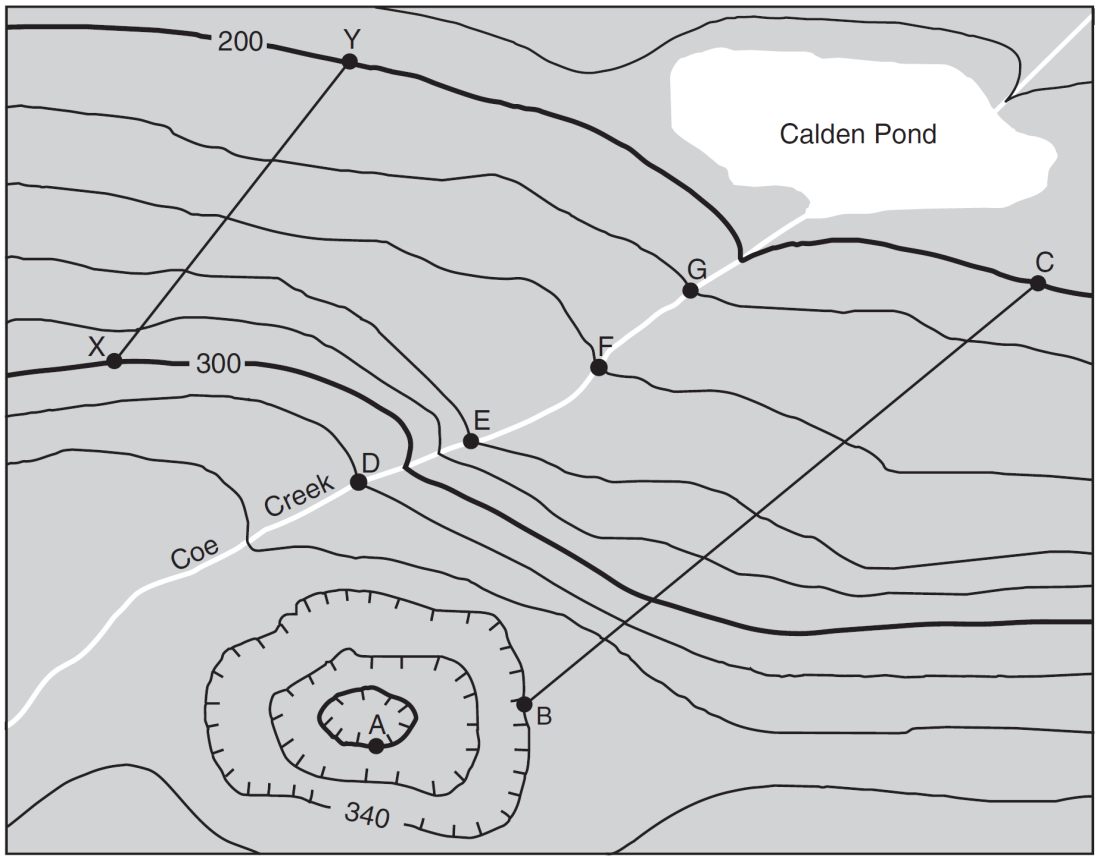
1. Identify the compass direction toward which Kim Brook flows. Describe the evidence shown on the map that indicates the water flows downhill in that compass direction.

2. Calculate the gradient between points *C* and *D*. Label your answer with the correct units.

3. On the grid construct a topographic profile along line *AB* by plotting the elevation of each contour line that crosses *AB*. The elevations of points *A* and *B* have been plotted on the grid. Connect all ten plots with a line from *A* to *B* complete the profile.



Base your answers to questions **4** through **8** on the topographic map below and on your knowledge of Earth science. Point *A* represents a location on Earth's surface. Lines *BC* and *XY* are reference lines on the map. Points *D, E, F,* and *G* represent locations along Coe Creek. Elevations are shown in feet.



Contour interval = 20 ft

0 1 2 3 miles

Key

Depression contour line

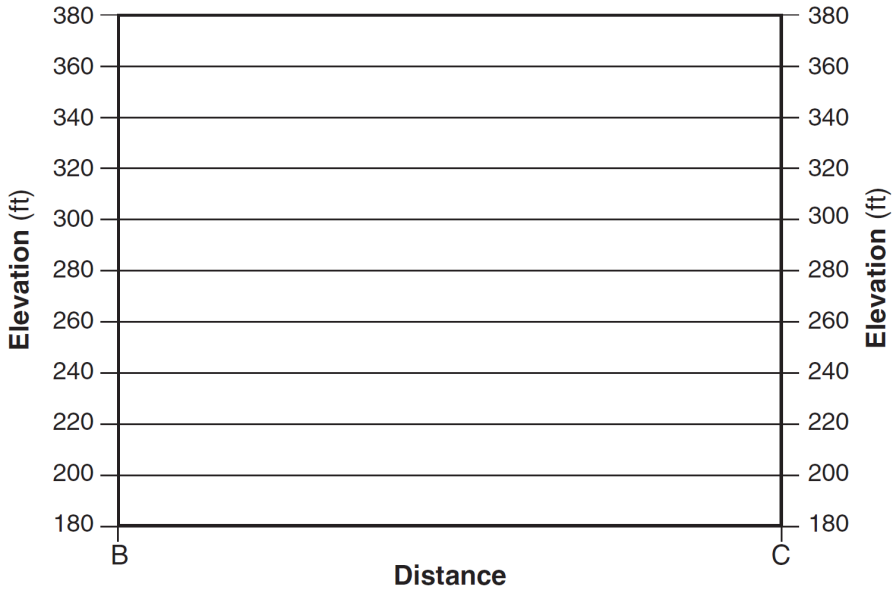
N

4. Calculate the gradient along line *XY*. Label your answer with the correct units.

5. Describe how the contour lines indicate that Coe Creek flows faster between locations *D* and *E* than between locations *F* and *G*.

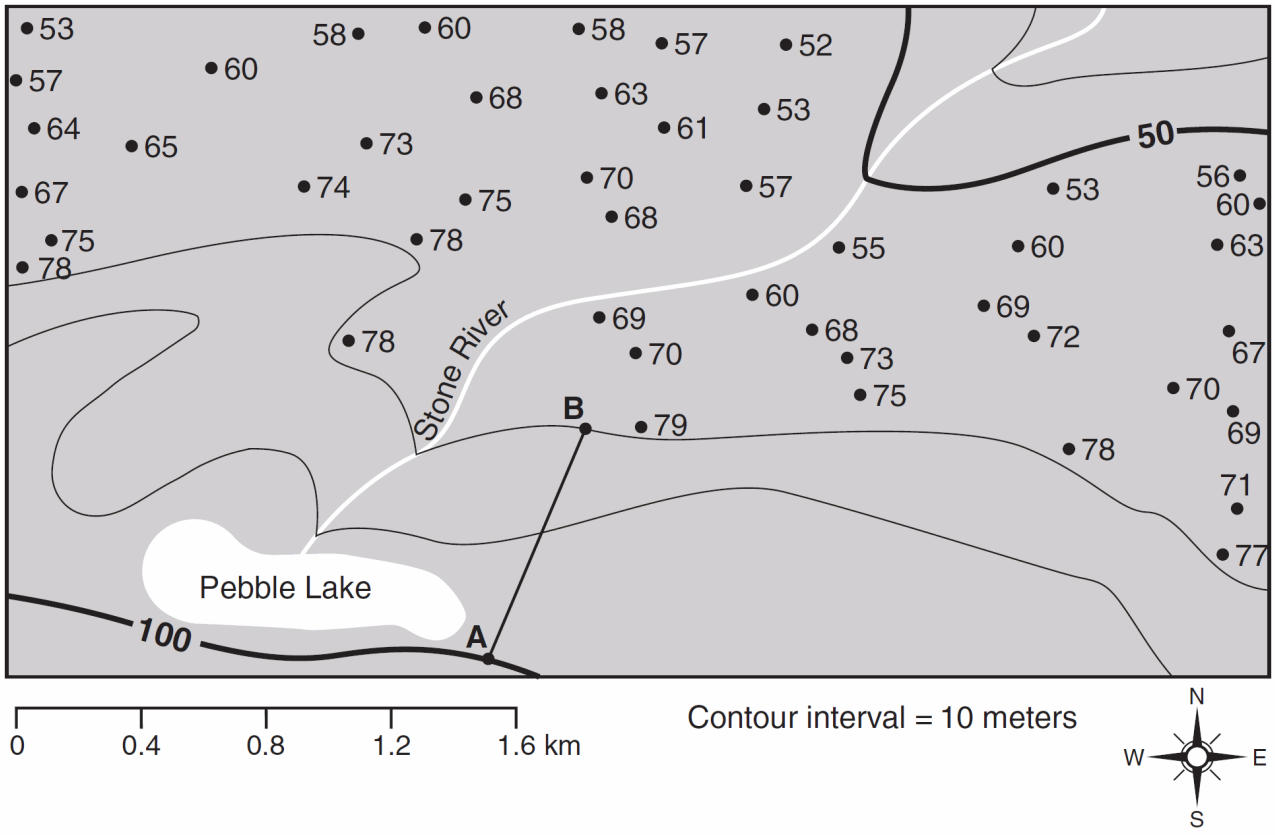
6. Describe the evidence shown on the map that indicates Coe Creek flows toward the northeast.

7. On the grid below, construct a topographic profile of the land surface along the line from point *B* to point *C*. Plot the elevation of *each* contour line that crosses line *BC*. Connect *all nine* plots with a line to complete the profile.



8. What is the elevation of location *A*?

Base your answers to questions **9** through **11** on the topographic map below and on your knowledge of Earth science. Some contour lines have been drawn. Line *AB* is a reference line on the map.

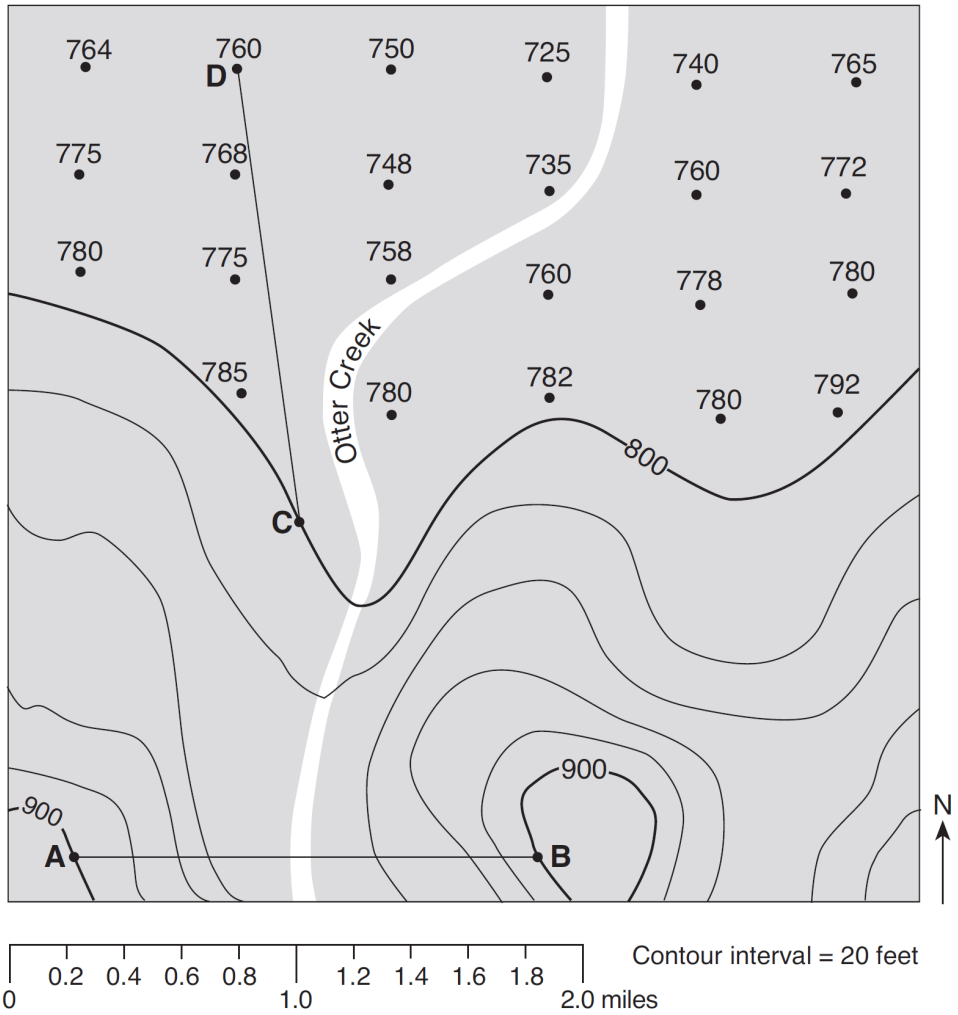


9. Calculate the gradient along the reference line from *A* to *B*, in meters per kilometer.

10. State a likely surface elevation of Pebble Lake.

11. On the map, draw the 60-meter and 70-meter contour lines. The contour lines should extend to the edges of the map.

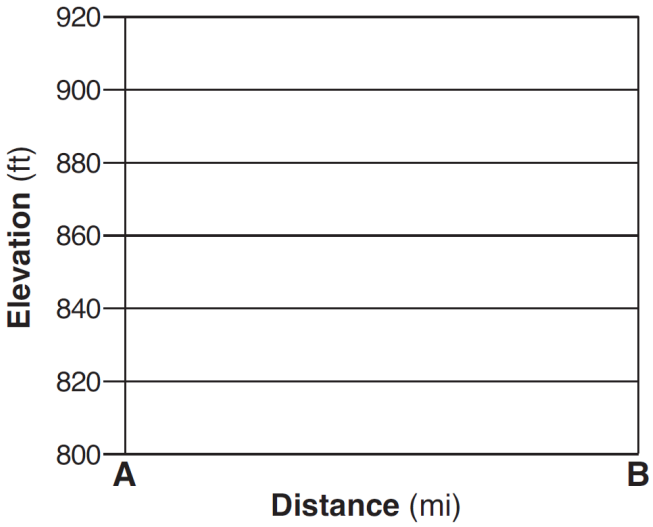
Base your answers to questions **12** through **15** on the map below, which shows elevations in feet at various points. The southern part of the map has contour lines representing elevations at 20-foot intervals. Lines *AB* and *CD* are reference lines on the map.



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

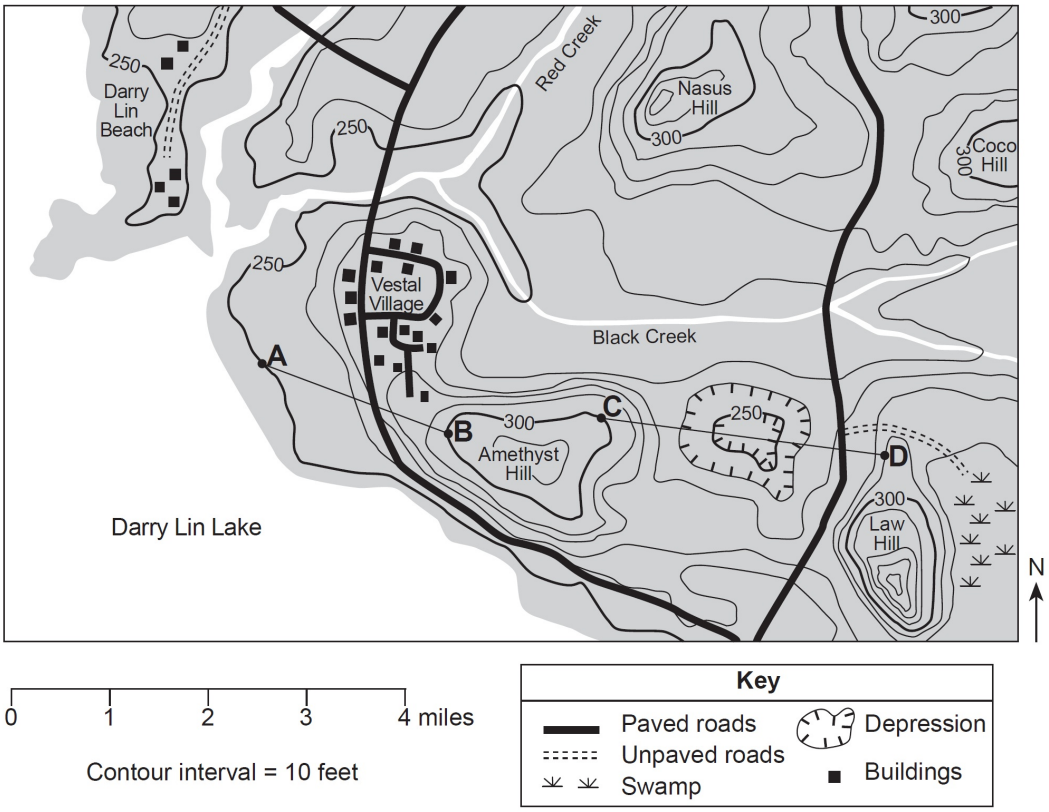
13. Calculate the gradient along line *CD* and label your answer with the correct units.

14. 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.



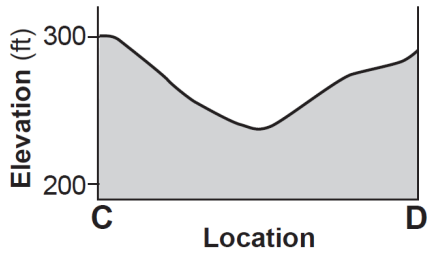
15. On the map, draw contour lines for the 780-ft, 760-ft, and 740-ft elevations. Extend your contour lines to the edges of the map.

16. Base your answer to the following question on the topographic map below and on your knowledge of Earth Science. Points *A*, *B*, *C*, and *D* represent locations on the surface of Earth. Elevations are measured in feet.

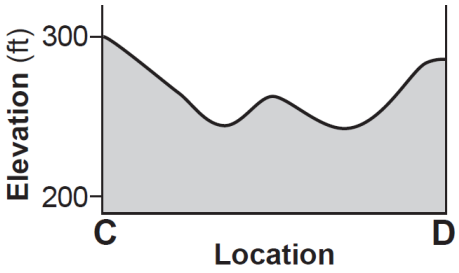


Which cross section represents an accurate profile of the landscape between points *C* and *D*?

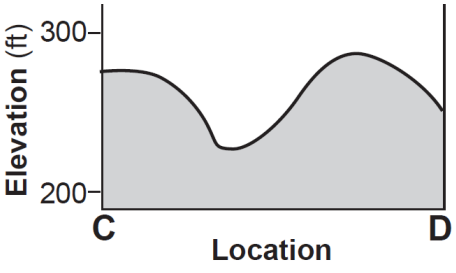
A)



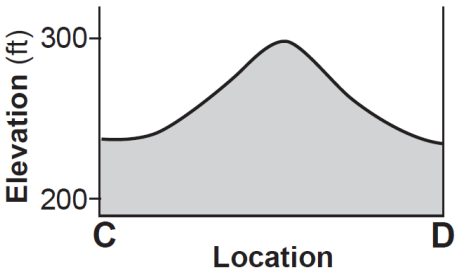
B)



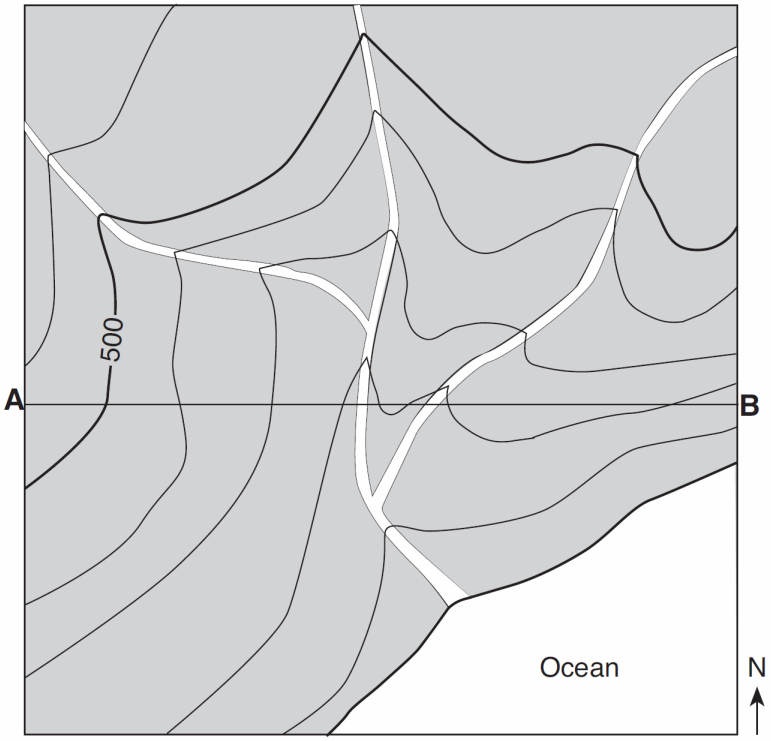
C)



D)



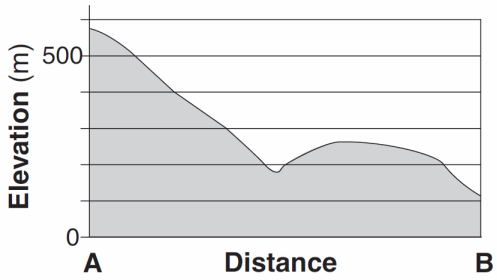
17. The contour map below shows elevations recorded in meters. Line *AB* is a reference line on the map.



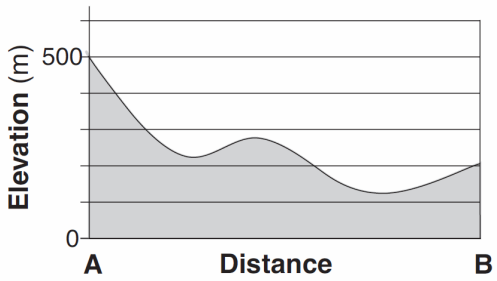
Contour interval = 100 m

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

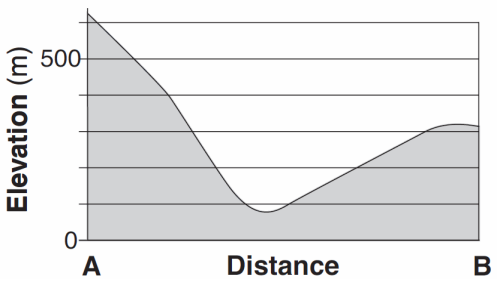
A)



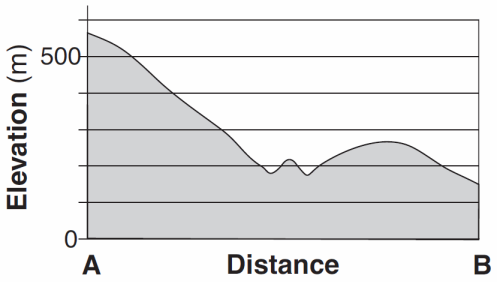
B)



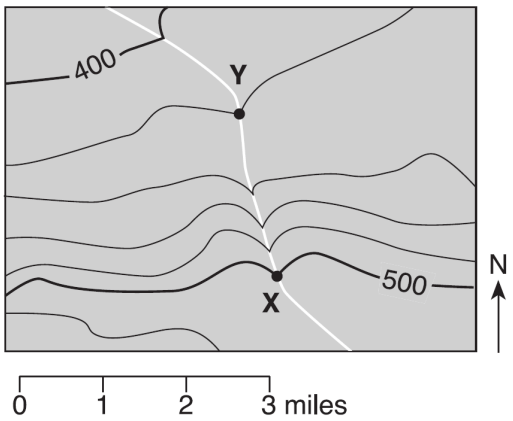
C)



D)



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

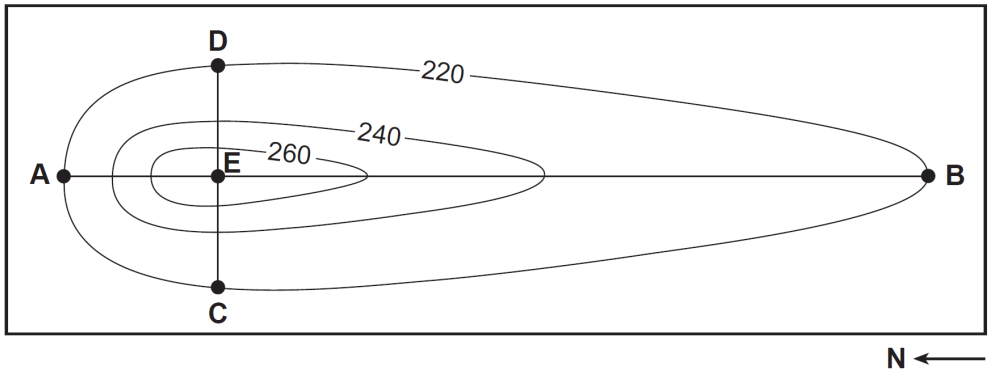


What is the approximate gradient between point *X* and point *Y*?

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

19. 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.

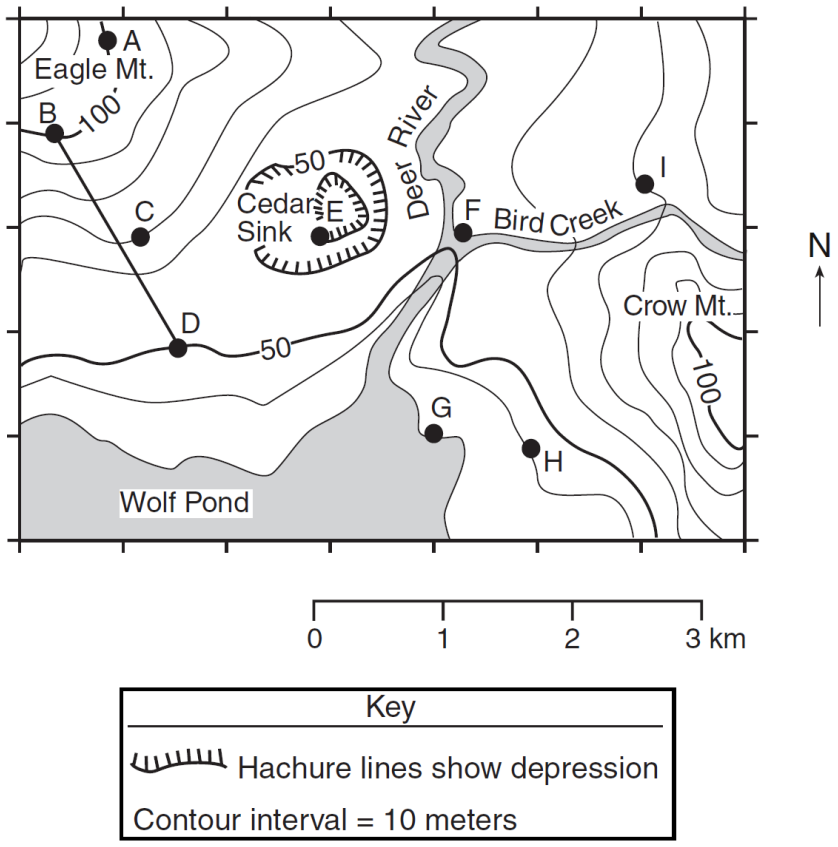
Contour Map



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.

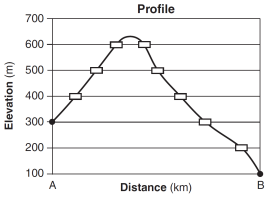
20. Base your answer to the following question on the topographic map below. Points *A* through *I* are locations on the map. Elevations are shown in meters.

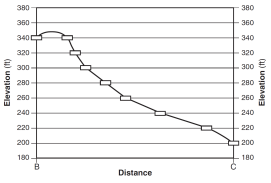


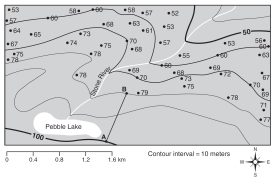
Which locations have the same elevation?

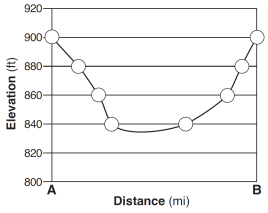
A) *A* and *C* B) *B* and *E* **C) *C* and *I*** D) *F* and *G*

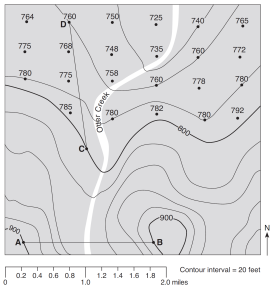
Answer Key
Unit 2 Exam Prep pt 2. Topographic Maps

1. Compass direction: — NE — east northeast — NNE — from SW to NE Evidence: — Contour lines bend upstream when they cross Kim Brook. — Contour lines make a V shape at Kim Brook and the V points uphill. — The brook flows out of the Vs. — Kim Brook flows from a higher to a lower elevation. — Elevations decrease toward the northeast. — Kim Brook flows to sea level/the ocean.
2. 73 to 77 or -73 to -77 m/km or meters/kilometers
3. 

4. — ft/mi — feet/mi — feet/mile
5. — Contour lines between *D* and *E* are closer together. — Contour lines between *F* and *G* are farther apart, indicating a slower stream velocity. — Contour lines that are closer together indicate a steeper slope/gradient. — There is a greater elevation change between *D* and *E*.
6. — Contour lines bend upstream when they cross Coe Creek. — Contour line elevations decrease toward the northeast along Coe Creek. — The V shapes of the contour lines point upstream toward higher elevations. — Lower elevations are toward the northeast. — Contour lines make V-shapes that point southwest. — The contour lines are bending in the opposite direction.
7. 

8. 300 ft
9. any value from 22 m/km to 29 m/km
10. any value greater than 90 m, but less than 100 m
11. 

12. — Contour lines bend upstream forming a V-shape. — Streams flow from higher-elevation isolines to lower-elevation isolines. — Isolines bend uphill when they cross streams.
13. 23-27 feet/mile
14. 

15. 

16. **A**
17. **D**
18. **C**
19. **B**
20. **C**