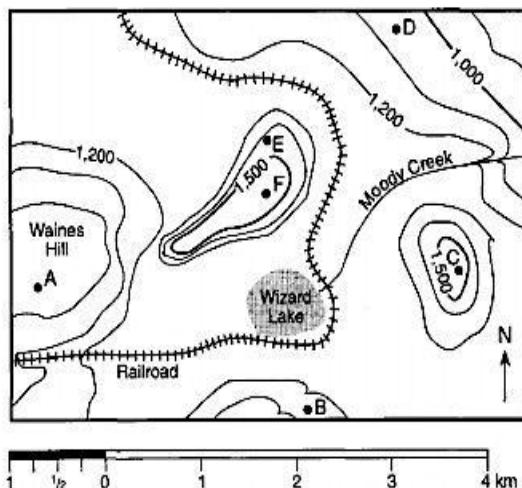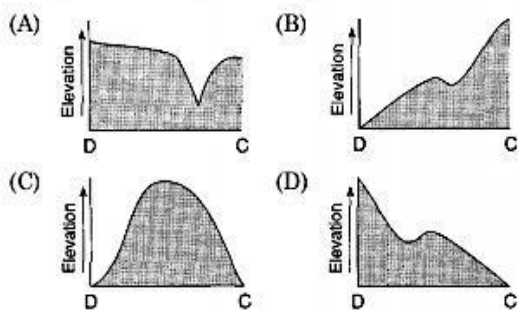**ES/UNIT 2: Measuring Earth/Part 2**
Mrs. Choudhery

1. Base your answer to the following question on the topographic map below. Letters A through F represent locations on the map.

Which diagram best represents the profile along a straight line from point D to point C?
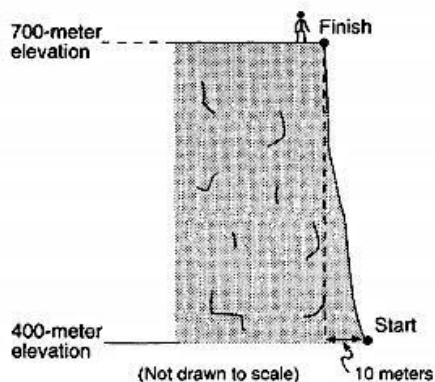
(A)
(B)
(C)
(D)

2-Base your answer to the following question on the topographic map below. A, B, C, and D are locations on the map.

Contour interval = 2 meters
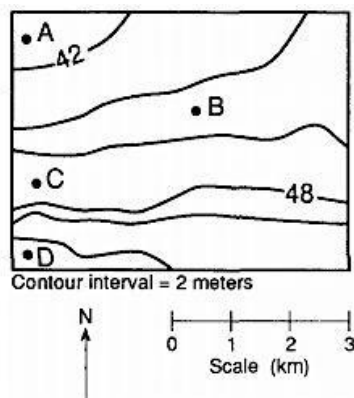
Between which two locations does the steepest gradient occur?

___ 3. The diagram below shows a cross section of a cliff climbed by a student.
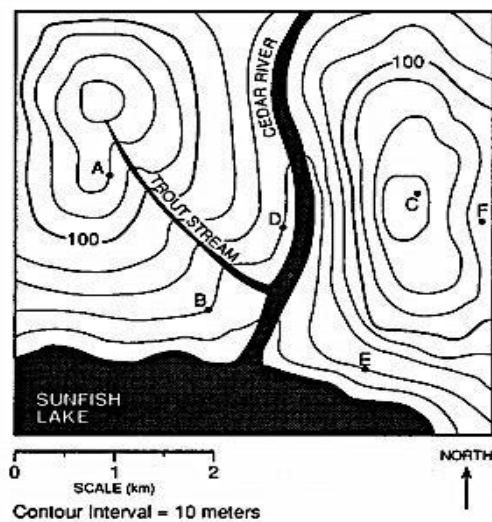

What is the approximate average gradient of the cliff?
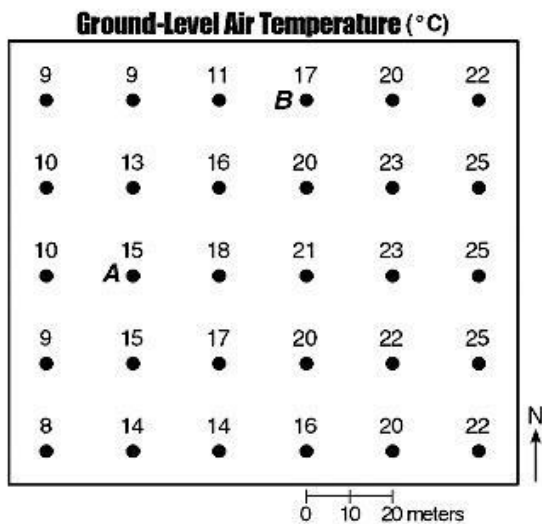
(A) 10 m/m   (B) 30 m/m
(C) 300 m/m   (D) 700 m/m

4,

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

Contour Interval = 10 meters

(A) A and B **(B)** B and C **(C)** C and D **(D)** A and C

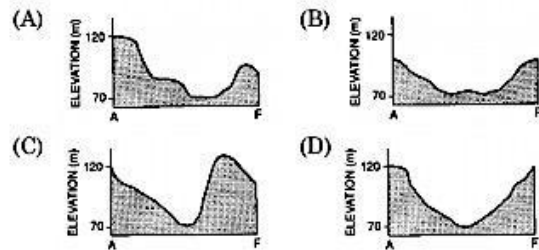**Questions 5 and 6 refer to the following:**

The field map below shows air temperature at specific locations in an area near a school in New York State. Part of this area is a blacktop parking lot. Accurate temperature readings were taken by Earth Science students at 10 a.m. on June 1. Two reference points, A and B, are shown.

Ground-Level Air Temperature (°C)

9	9	11	17 B	20	22
10	13	16	20	23	25
10	15 A	18	21	23	25
9	15	17	20	22	25
8	14	14	16	20	22

N ↑

0 10 20 meters

5. On the given field map, draw only the 15degree C and the 20degrees C isotherms. [Isotherms must be extended to the edge of the map.]

6. Calculate the temperature gradient along a straight line between point A and point B on the given map by following the directions below.
a- Write the equation for finding the temperature gradient.
b Substitute the values into the equation.
c Solve the equation and record your answer in decimal form. Label the answer with the correct units.

7. A stream has a source at an elevation of 1,000 meters. It ends at a lake that has an elevation of 300 meters. If the lake is 200 kilometers away from the source, what is the average gradient of the stream?
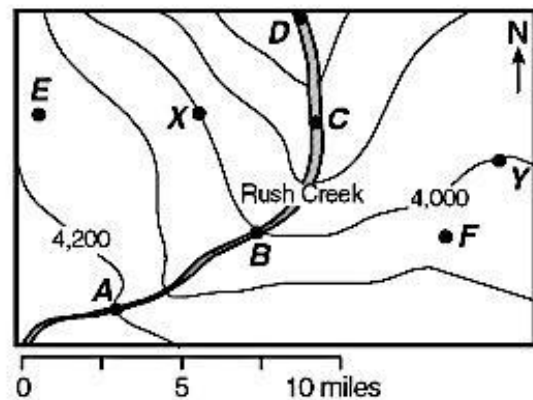
A) 15. m/km   B) 10. m/km

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

**Questions 8 through 11 refer to the following:**
Points A, B, C, D, E, F, X, and Y are locations on the topographic map below. Elevation is measured in feet.

8. Between points C and D, Rush Creek flows toward the
A) north   B) east   C) west   D) south

9. What is the contour interval used on this map?
A) 200 ft   B) 50 ft   C) 100 ft   D) 20 ft

10. The gradient between points A and B is closest to

A) 40 ft/mi   B) 80 ft/mi
C) 200 ft/mi   D) 20 ft/mi

11.Which diagram best represents the profile along a straight line between points X and Y
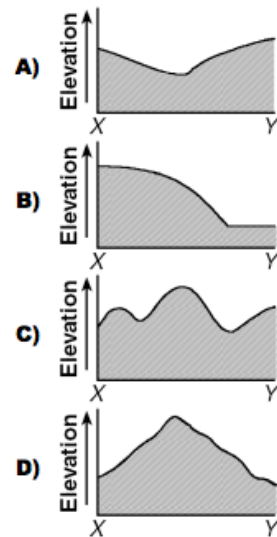
C) 3.5 m/km   D) 1.5 m/km


```
3500
X
Y  3000
B
A
3000
Snapper Creek
```
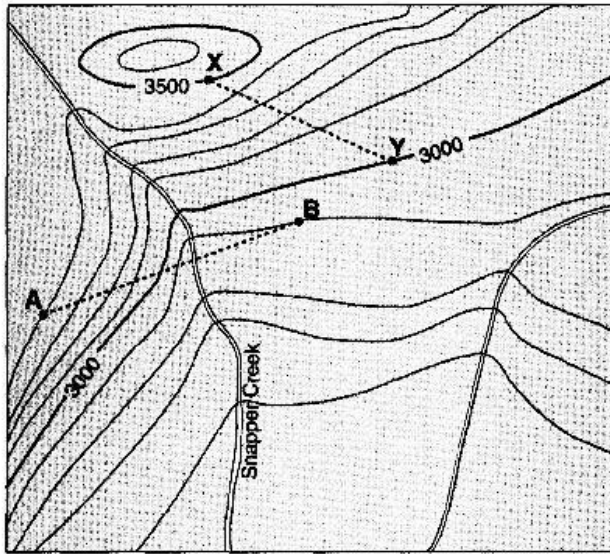
0   1   2   3 miles   Contour interval = 100 feet

N

A) Elevation X → Y
B) Elevation X → Y
C) Elevation X → Y
D) Elevation X → Y

Base your answer to the following question 12 on the topographic map below.
Points A, B, X, and Y are locations on Earth's surface.

12-Calculate the gradient between points X and Y. Units must be included in your answer.

13. The diagram below represents contour lines on a topographic map with cross section line AB.

TOPOGRAPHIC PROFILE

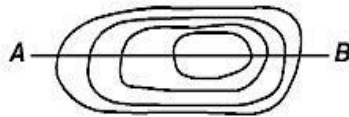Elevation (m) / River / Horizontal Distance / X / Y
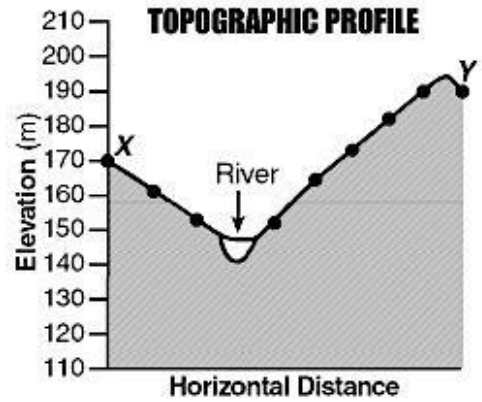
Questions 14 through 17 refer to the following: Letters A through K are reference points on the contour map below.

14. The diagram to the right represents a topographic profile between two points on the map. Which two locations are represented on the diagram by X and Y, respectively?
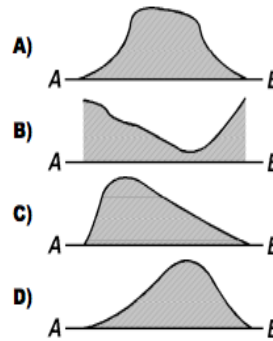
A) B and H   B) A and I
C) K and C   D) H and E

A) A ———— B

15. What longitude is the latitude and of location B?

B) A ———— B

A) 74degrees
B) 74degrees   C) A ———— B

C) 42degrees 20 N 74degrees33 W
D) 42degrees 20 N 74degrees 34 W

D) A ———— B

42degrees 19 N 33 W
42degrees 19 N 34 W

Which diagram best represents the topographic profile along line AB?

16. Which points are located at the same elevation above sea level?

74°35' W   74°30'W

42°20'N   42°20'N

Hachure lines show depression contours

Contour interval = 10 meters

0   1   2   3   4
Scale in kilometers

110
GREEN RIVER
K   J   I
G
183 Piper Mt.
H
F
E
Jay Peak
N

42°15'N   42°15'N
74°35'W   74°30'W
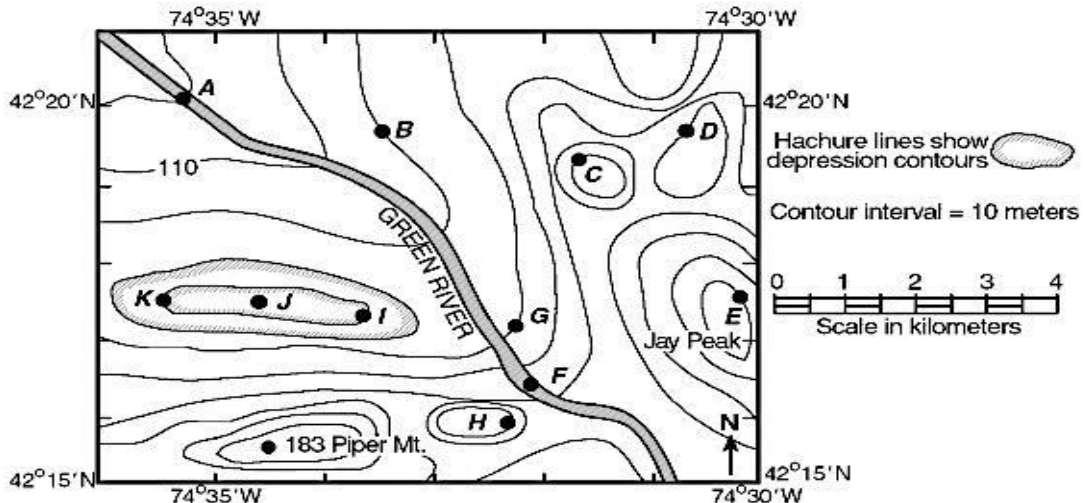
A) I and K   B) C and B   C) H and E   D) A and F

17. In which direction is Green River flowing?
A) southwest   B) northwest   C) northeast   D) southeast

18. Base your answer to the following question on the topographic map of an island shown below. Elevations are expressed in feet. Points A, B, C, and D are locations on the island. A triangulation point shows the highest elevation on the island. Draw the profile in between points A & B.

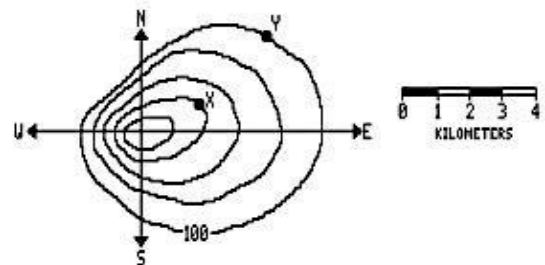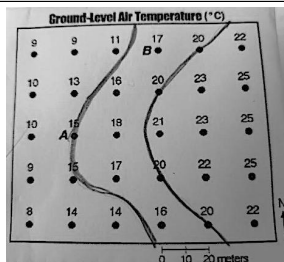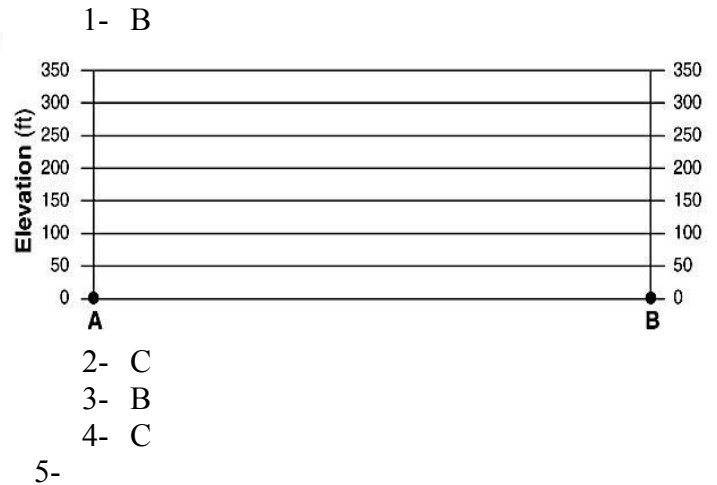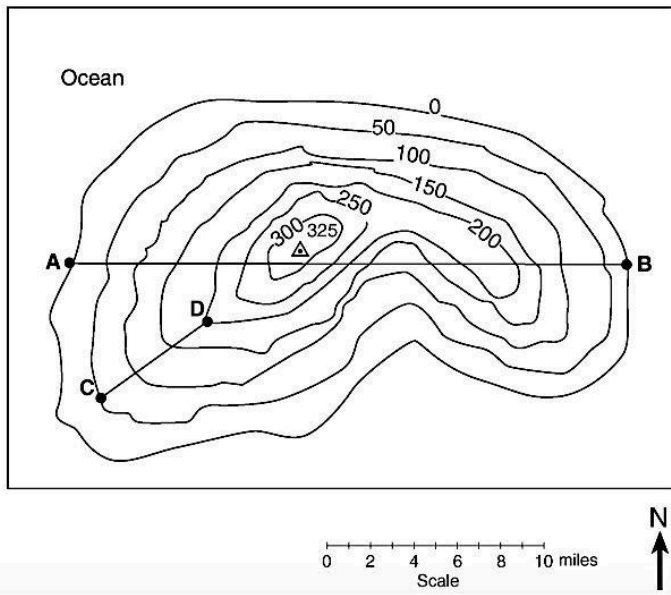**Use the bottom map to answer questions 19 and 20.**
According to the diagram below which represents a contour map of a hill, what is the approximate gradient of the hill between points X and Y?
19- A) 3 m/km   B) 1 m/km
       C) 10 m/km   D) 30 m/km

20. On which side of this hill does the land have the steepest slope?

A) north   B) south
C) west   D) east

Answer Key

1- B

2- C
3- B
4- C

5-

N

0 2 4 6 8 10 miles
Scale

Contour Interval = 10 meters

6-a gradient =temperature /distance; b gradient= 2 C^0 / 50m; c   gradient = 0.03 – 0.05 C^0/m
C_o/m

7- C

8- A

9- C

10- A

11- A

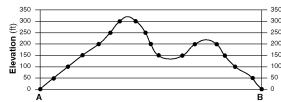12-Any value from 280 to 310 with correct units (ft/mi or feet per mile)

13-D

14-D

15-A

16-A

17-B

18-

19- C

20. C