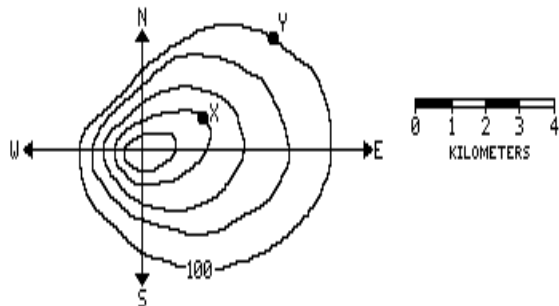


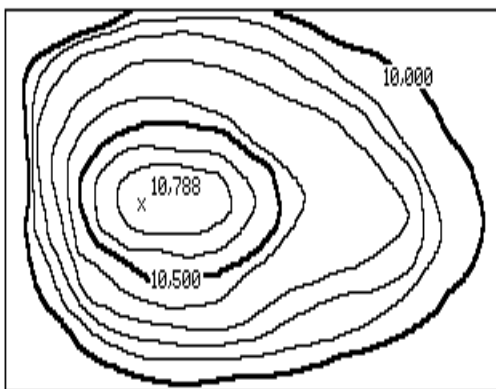
Name: \_\_\_\_\_

- 1) A vector quantity must include *both* magnitude and direction. Which measurement is a vector quantity?
  - A) the rain accumulation at a weather station
  - B) the motion of water in an ocean current
  - C) the air temperature in a room
  - D) the highest elevation of a hill
- 2) 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?



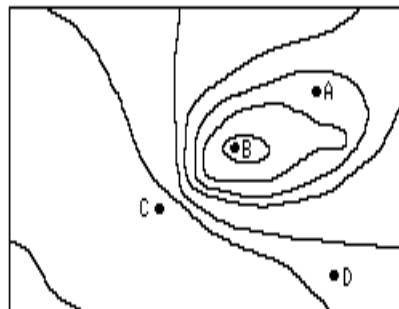
**Contour Interval = 10 meters**

- A) 3 m/km
  - B) 1 m/km
  - C) 10 m/km
  - D) 30 m/km
- 3) What is the elevation of the highest contour line shown on the map below?

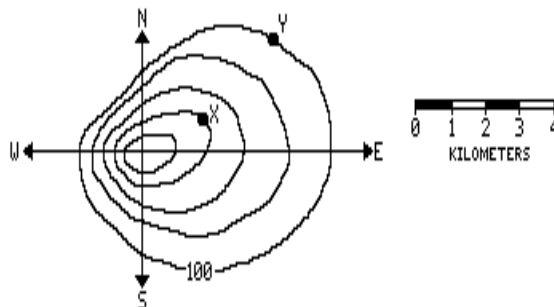


- A) 10,000 feet
  - B) 10,700 feet
  - C) 10,788 feet
  - D) 10,688 feet

- 4) The diagram below is a contour map. Between which two points is the slope of the hill steepest?



- A) A and D
  - B) C and D
  - C) A and B
  - D) B and C
- 5) A contour (topographic) map indicates that a stream is flowing across the landscape. If the stream has a constant volume, where on the map would the stream most likely have the highest velocity?
  - A) as the stream moves across several closely spaced contour lines
  - B) as the stream moves through a large region that has no contour lines
  - C) as the stream moves parallel to two contour lines
  - D) as the stream moves across several widely spaced contour lines
- 6) 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
  - C) 3.5 m/km
  - D) 1.5 m/km
- 7) According to the diagram below which represents a contour map of a hill, on which side of the hill does the land have the steepest slope?

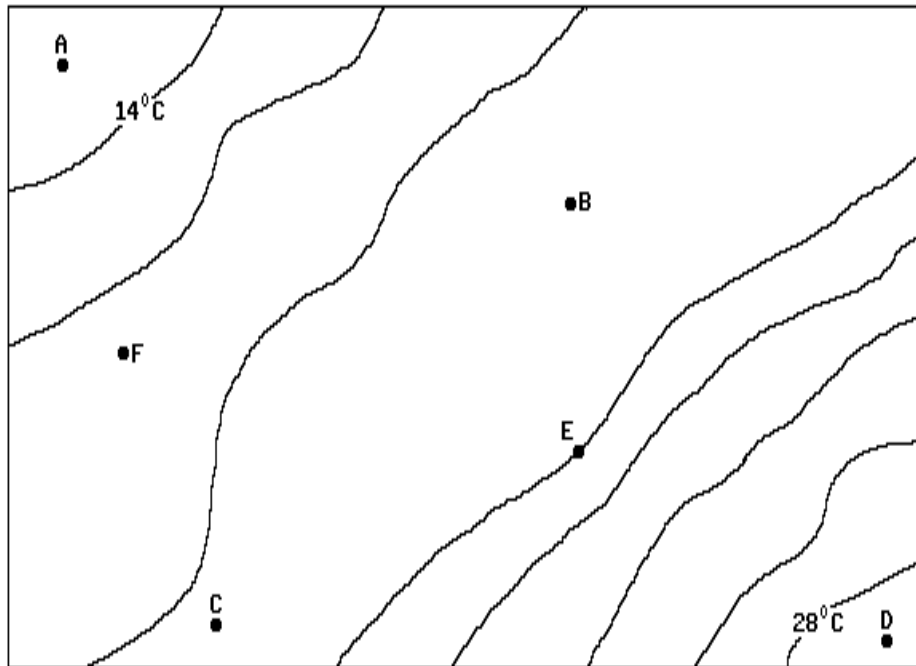


**Contour Interval = 10 meters**

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

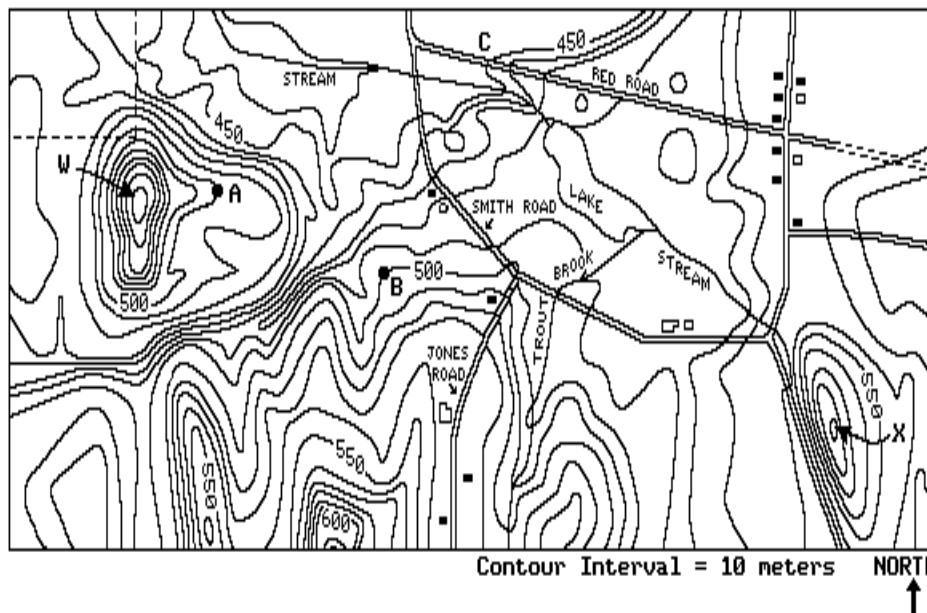
Questions 8 and 9 refer to the following:

The isoline map below represents various temperatures taken 1 meter above the floor in a closed room. Letters *A* through *F* are various locations in the room also located 1 meter above the floor.



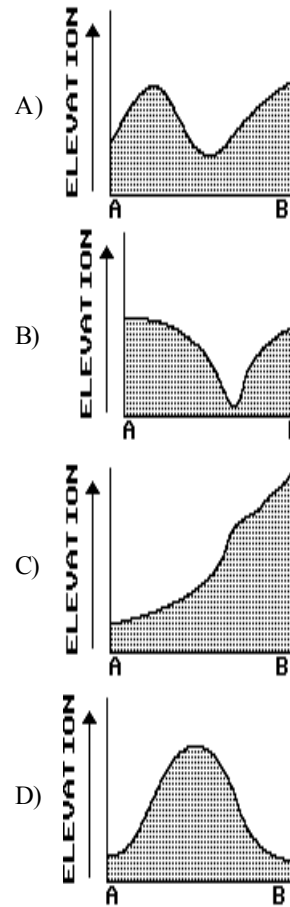
- |   |   |   |
|---|---|---|
| <p>8) The <i>smallest</i> temperature gradient exists between locations</p> <p>A) <i>C</i> and <i>D</i></p> <p>B) <i>A</i> and <i>B</i></p> | <p>9) The approximate temperature at location <i>B</i> is</p> <p>A) 22°C</p> <p>B) 19°C</p> | <p>C) <i>F</i> and <i>D</i></p> <p>D) <i>B</i> and <i>C</i></p> <p>C) 17°C</p> <p>D) 24°C</p> |
|---|---|---|

Questions 10 through 14 refer to the following:



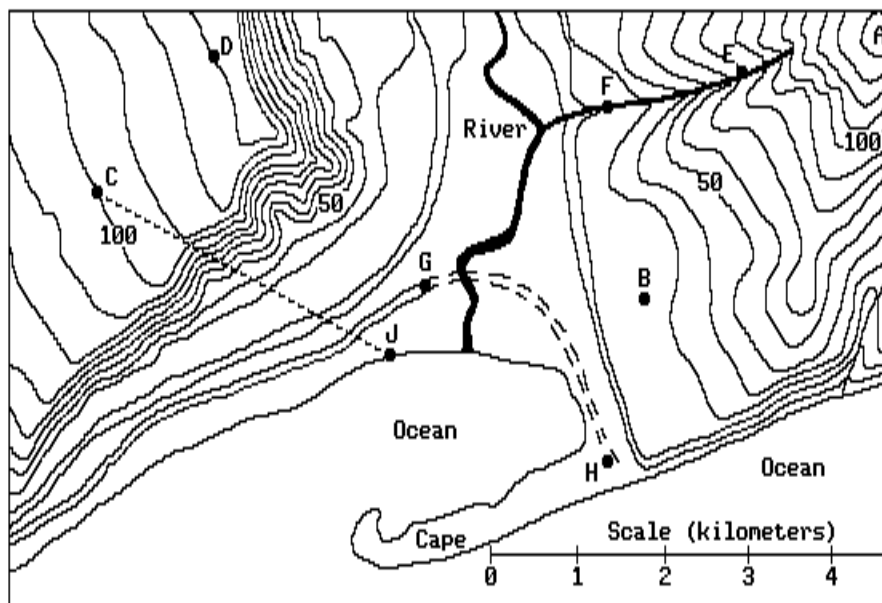
- 10) What is the elevation of the highest contour line on hill *W*?  
 A) 510 m                                      C) 560 m  
 B) 440 m                                      D) 610 m
- 11) What is the elevation at the intersection of Jones Road and Smith Road?  
 A) 600 m                                      C) 450 m  
 B) 500 m                                      D) 550 m
- 12) On which side of hill *X* is the steepest slope found?  
 A) east    C) southwest  
 B) southeast                                      D) north
- 13) In which general direction is Trout Brook flowing when it passes under Smith Road?  
 A) northwest                                      C) northeast  
 B) southeast                                      D) southwest

- 14) Which diagram best represents the profile along a straight line between points *A* and *B*?

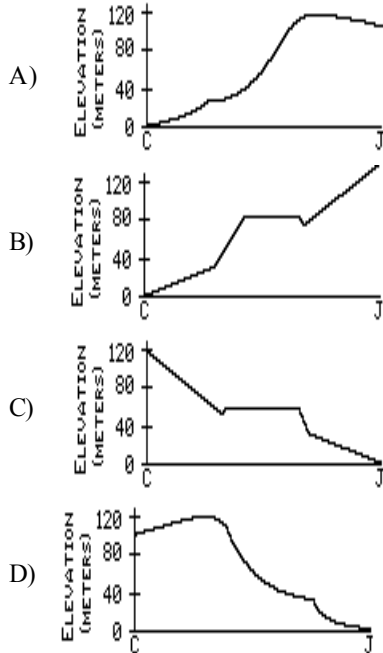


Questions 15 through 19 refer to the following:

The topographic map below represents a coastal landscape. The contour lines show the elevations in meters.



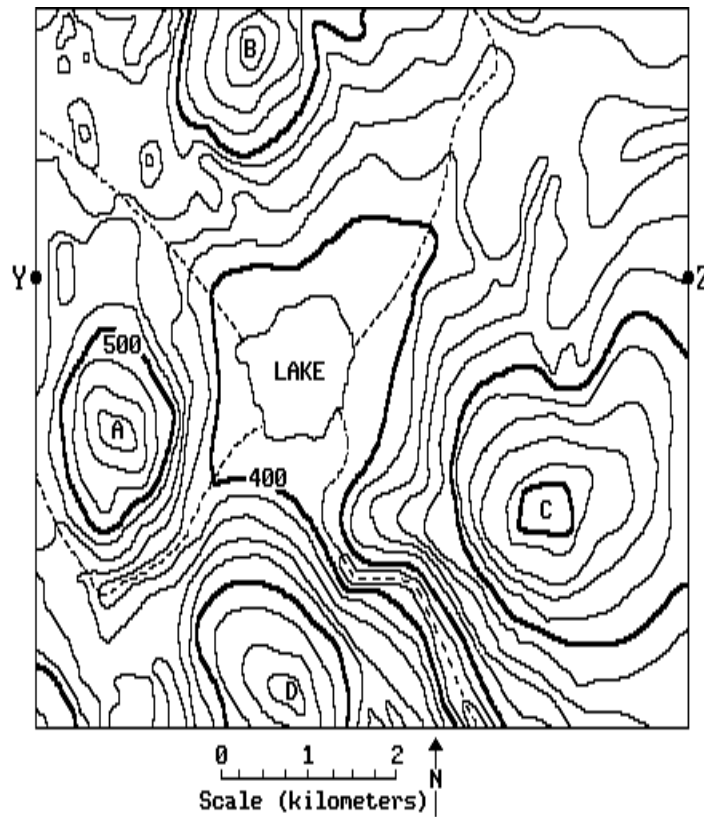
- 15) What is the general direction of flow of the river between points *E* and *F*?
- A) east to west                      C) south to north  
B) west and east                      D) north to south
- 16) Which diagram best represents the profile along a straight line between points *C* and *J*?



- 17) What is the rate of change in elevation (gradient) of the land from point *C* to point *D*?
- A) 15 m/km                              C) 10 m/km  
B) 25 m/km                              D) 20 m/km
- 18) What is the elevation of the highest contour line shown on the map?
- A) 155 m                                  C) 140 m  
B) 180 m                                  D) 150 m
- 19) What is the approximate distance along the dirt road from points *G* to *H*?
- A) 2.1 km                                  C) 2.6 km  
B) 3.2 km                                  D) 4.0 km

Questions 20 through 24 refer to the following:

The diagram below represents the isolines of an elevation field (topographic map) for a region. The dashed lines represent the streams flowing in this region. [Note: On this map the contour interval is measured in feet and the scale is measured in kilometers.]



- 20) The straight line distance between the tops of hills *A* and *D* is closest to
- |           |           |
|-----------|-----------|
| A) 3.2 km | C) 4.2 km |
| B) 1.1 km | D) 2.0 km |
- 21) A stream which flows away from the lake is located between
- |                                |                                |
|--------------------------------|--------------------------------|
| A) hills <i>C</i> and <i>D</i> | C) hills <i>A</i> and <i>B</i> |
| B) hills <i>B</i> and <i>C</i> | D) hills <i>D</i> and <i>A</i> |
- 22) Which hill could be 590 feet high?
- |             |             |             |             |
|-------------|-------------|-------------|-------------|
| A) <i>A</i> | B) <i>B</i> | C) <i>C</i> | D) <i>D</i> |
|-------------|-------------|-------------|-------------|
- 23) Which side of hill *C* is the steepest?
- |              |              |
|--------------|--------------|
| A) northwest | C) northeast |
| B) southwest | D) southeast |

- 24) Which diagram best represents the profile view along a straight line between points *Y* and *Z*?

