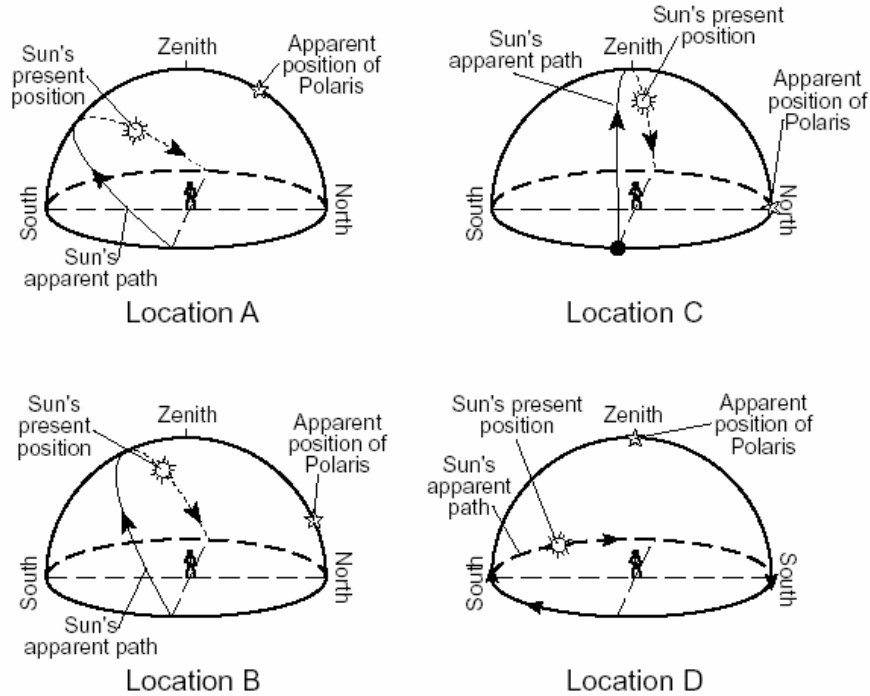


Earth Science Midterm Part 2 Review #2

Base your answers to questions 1 through 5 on the diagram below. The diagram represents the apparent path of the Sun observed at four locations on Earth's surface on March 21. The present positions of the Sun, Polaris, and the zenith (position directly overhead) are shown for an observer at each location.



1. The observer at location *A* casts a shadow at the time represented in the diagram.
 - a* State the compass direction in which the observer at location *A* must look to view her shadow.

 - b* Describe the change in the length of the shadow that will occur between the time shown and sunset.

2. State the approximate time of day for the observer at location *B* when the Sun is at the position shown in the diagram.

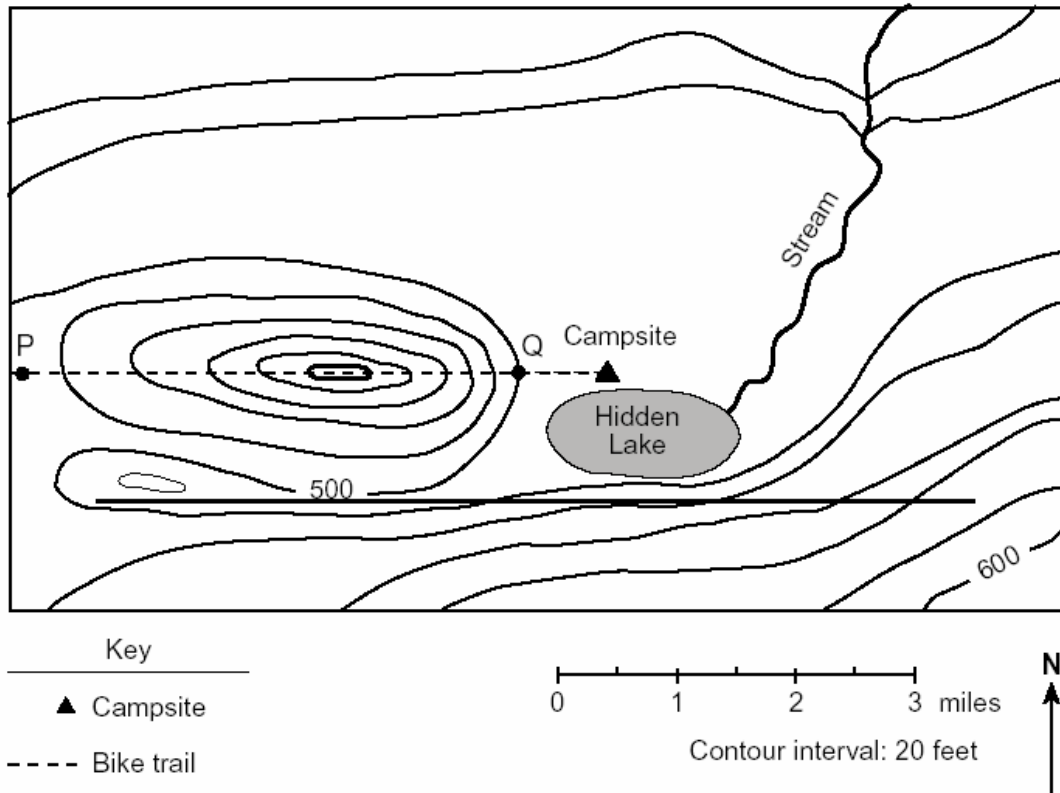
3. Explain why the intensity of sunlight at noon on March 21 is greater at location *C* than at the other locations.

4. The observer at location *D* is located at a higher latitude than the other three observers. State *one* way that this conclusion can be determined from the diagram.

5. State the other day of the year when the Sun's apparent path is exactly the same as that shown for these four locations on March 21.

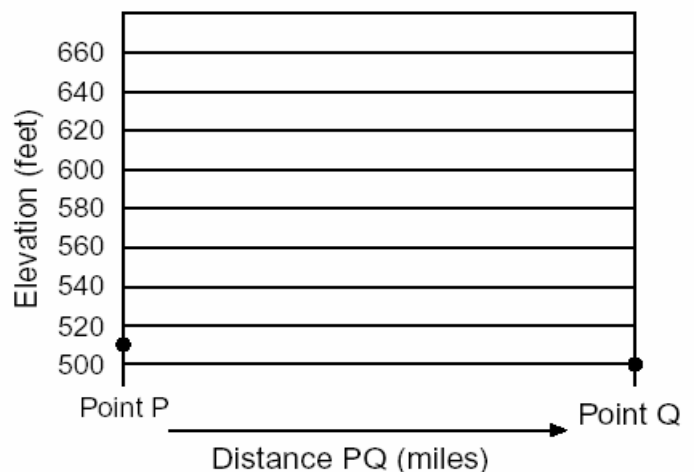
Base your answers to questions 6 through 11 on the reading passage and topographic map below.

A group of Earth science students decided to take an adventurous camping trip, so they rode bicycles to a New York State park that was located in an isolated area. They traveled up a steep hill. When they reached the top, they looked at the landscape and noticed a lake at the bottom of the hill. They named it Hidden Lake. To the left of Hidden Lake was a large field with a small stream. They decided to set up their campsite in the field near Hidden Lake. To get to the field, they cycled down a very steep slope. The map below shows the location of the bicycle trail and the students' campsite. Points *P* and *Q* are reference points on the map.



6. State the evidence shown on the map that indicates that the area directly north of Hidden Lake is relatively flat.
7. *a* State the general compass direction in which the stream is flowing.
b State how contour lines provide the evidence for determining this direction.

8. On the grid provided, draw a profile of the landscape along the bicycle trail from point *P* to point *Q* by following the directions:
 - a* Plot the elevation along line *PQ* by marking with a dot *each* point where a contour line is crossed by line *PQ*. Point *P* and point *Q* have been plotted for you.
 - b* Connect the dots to complete the profile.



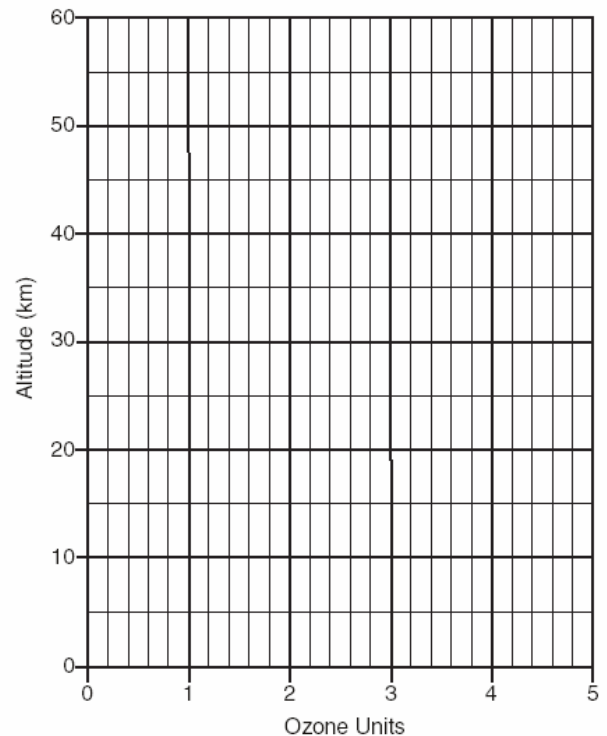
9. The students decided to measure the speed of the stream by floating apples down a straight section of the stream. Describe the steps the students must take to determine the stream's surface rate of movement (speed) by using a stopwatch, a 10-foot rope, and several apples. Include the equation for calculating rate.

10. The next day the students decided to move their campsite 1 mile directly east of their original campsite. On the map provided, place another campsite symbol, Δ , to indicate the location of their second campsite.
11. The students decided to take a different route home to avoid riding their bicycles up the steep hill. Plan a return route that will take the campers back to point P and that will involve the *least* change in elevation during the trip. On the map provided, draw a line from the second campsite to point P to show the route. Place arrows on the line to show the direction that the students will be traveling.

Base your answers to questions 12 through 15 on the table below, which shows the concentration of ozone, in ozone units, in Earth's atmosphere at different altitudes. [One ozone unit is equal to 10^{12} molecules per cubic centimeter.]

12. On the grid provided, construct a line graph of the ozone concentration in the atmosphere recorded at the different altitudes shown on the table by plotting the data from the table and connecting the points.

Concentration of Ozone	
Altitude (km)	Ozone Units
0	0.7
5	0.6
10	1.1
15	3.0
20	4.9
25	4.4
30	2.6
35	1.4
40	0.6
45	0.2
50	0.1
55	0.0



13. State the name of the temperature zone of the atmosphere in which the concentration of ozone is greatest.
14. State how incoming solar radiation (insolation) is affected by the ozone in the atmosphere.
15. What chemical compound released in the atmosphere by human activities has been suspected to have contributed to ozone depletion