

Topographic Maps

READ

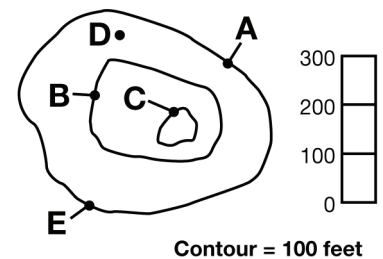


Flat maps can easily show landmasses and political boundaries. However, mapmakers need to draw special maps, called topographic maps, to show hills, valleys, and mountains. Mapmakers use contour lines to show the elevation of land features. The 0 contour line refers to sea level. The height above sea level is measured in equal intervals. Always look at the legend to see the elevation of each contour line interval. Sometimes these contour lines describe an increase of 20 feet. On other maps, especially those showing mountains, the contour lines may show elevation intervals of 100 to 1000 feet.

EXAMPLES

• Contour lines and elevations

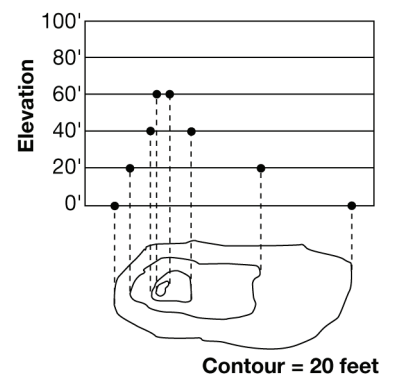
Look at Figure 1. On this map, the contour interval is 100 feet. Let's look at the letters marked on the map. Point A is at sea level. That means it is on the 0 contour line all the way around the island. Point B is on the next contour line. That means that B is 100 feet above sea level. What is the elevation at Point C? If you said 200 feet, you would be correct. At what elevation is Point D? The correct answer is somewhere between 0 and 100 feet. You can't be exact because D is not on a contour line. Where is Point E? Yes, it's at sea level, the same level as A.



Take a minute to color the contour key and the map. Color green between 0 and 100 feet, color yellow between 100 and 200 feet, color red between 200 and 300 feet. Mapmakers generally use blue for water only, so do not use it in a contour key.

• Profile Maps

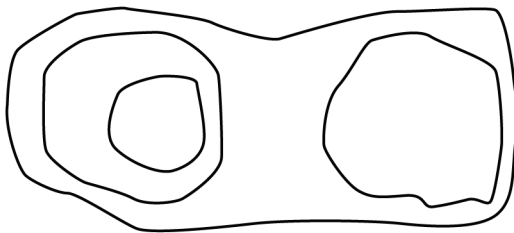
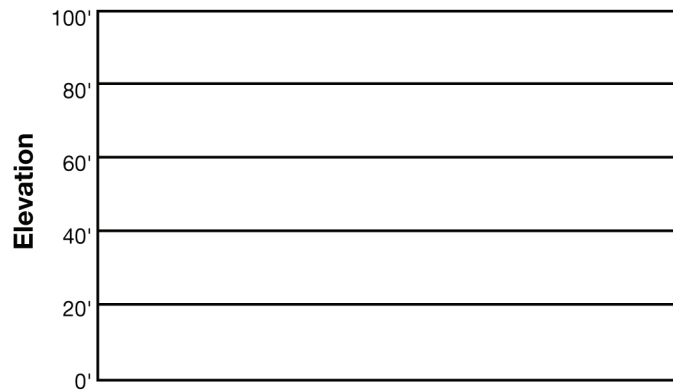
You can also translate contour lines into a profile map. In this way you can actually draw what you would see if you were approaching by sea. Look at the following map as you read the steps to create a profile map. First, you draw a graph above the map that shows the intervals. The contour is 20 feet so you would label the elevation in 20-foot intervals on the left. Your task is to make dots on the lines of the graph directly above the island contour lines. Put a ruler against the left hand edge of the island, and make a dot on the 0' line of the graph. Slide your ruler to the right hand edge of the island and make a second dot on the 0' line. Next go to the second contour line and mark two dots on the 20-foot interval line in the graph above the map. Continue marking two dots at the widest dimensions for contour lines 40 feet and 60 feet. Now connect the dots. This shows you the profile of the island. Note, the island's elevation is probably a little more than 60 feet, so you could draw a peak on the top of the hill taller than 60 but less than 80 feet. Even if the island were 79 feet tall, there would not be an 80-foot contour line.



PRACTICE

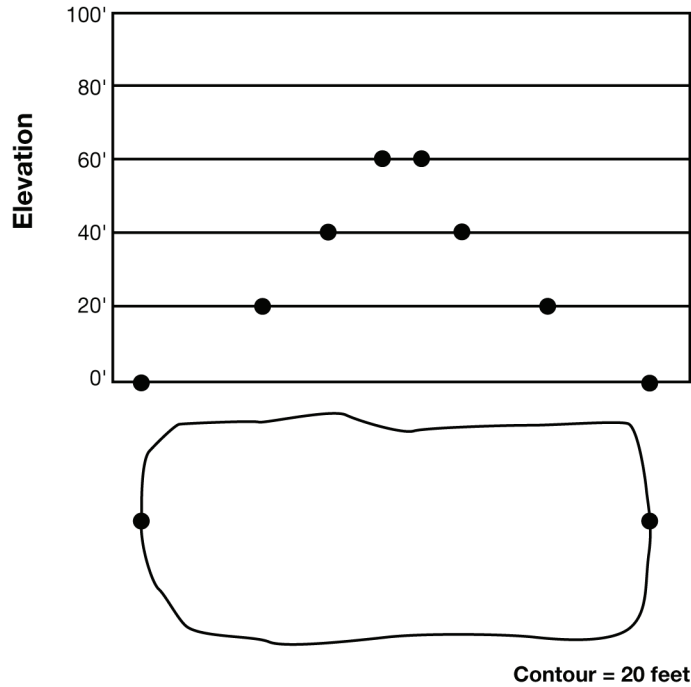


1. Draw a profile map of the island in Figure 3. (Hint: You will have four dots on the 20' line.)

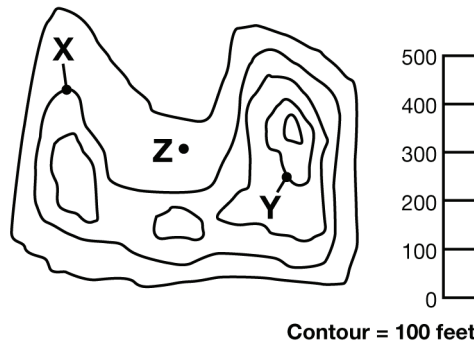


Contour = 20 feet

2. Reverse the process to make a topographic map from the profile map. For each dot on the graph, you will make a small dot on the map showing where the contour line begins or ends. Draw a free form contour line that runs through the two dots. The 0' contour (sea level) has been done for you.

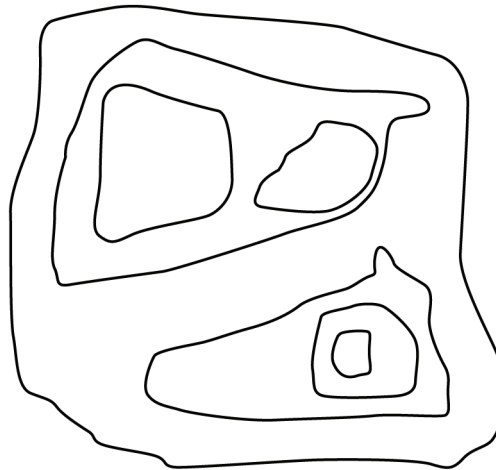


3. Color the following map and contour key, and answer the questions.



- a. What is the lowest elevation on this map? _____
 - b. What is the highest elevation on this map? _____
 - c. What is the elevation at X? _____
 - d. What is the elevation at Y? _____
 - e. What is the elevation at Z? _____
4. Today scientists worry that global warming may cause the ice caps to melt, causing the sea levels to rise. Look at the map below. It has a contour of 15 feet.
- a. Let's pretend that the sea level has risen 15 feet. Color the first contour (0-15') of the map dark blue, so that the new sea level is revealed. How has this island changed?

- b. Now let's pretend that the sea level rises another 15 feet. Color the next contour light blue and describe the changes in the original island.
- c. What if the sea level rose by 30 feet due to global warming, and a hurricane hit the island? Could the people find dry land if there were a 35 -foot storm wave?



Contour = 15 feet