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Determining elevation by reading contour lines worksheet

The elevation of unlabelled contour lines can be determined using the contour interval at the bottom of the map. The contour interval indicates the vertical distance between the neighbouring lines. By counting the number of contours of a labeled line, and multiplying by the contour interval, you can calculate the elevation of any contour line. For points between the contour lines, you can estimate the altitude by looking at the distance to the two closest outlines. 4. What is the rise of points marked A, B and C? The elevation of unlabelled contour lines can be determined using the contour interval at the bottom of the map. The contour interval indicates the vertical distance between the neighbouring lines. By counting the number of contours of a labeled line, and multiplying by the contour interval, you can calculate the elevation of any contour line. For points between the contour lines, you can estimate the altitude by looking at the distance to the two closest outlines. 4. What is the rise of points marked A, B and C? Understand contour line formations and how to read topographic maps. What are contour lines and topographic maps? Have you ever noticed these squiggly lines all over your hiking map? Aside from the obvious trails and rivers, these squiggly lines are contour lines. In other words, contour lines mark equal elevation points on a map. If you draw the length of a line with your finger, each point you touch is the same height above sea level. If you were to walk the path of a contour line in real life, you would stay at the same altitude all the hike, never traveling up or down. Contour lines are essential for understanding the altitude profile of your terrain or a particular land formation. This information can be useful when selecting a hiking itinerary... or save lives in a desperate situation of survival. Beyond hiking and hiking, countless other professions use them - surveyors-geopentors, foresters, engineers, miners, geologists, hunters, to name a few. Topography is the study of the geographical characteristics of a landscape. A map with contour lines on it is called a topographic map. Topographic maps use a combination of colors, shading and contour lines to represent changes in terrain altitude and shape. Essentially, topographic maps represent the three-dimensional landscape of the Earth in the two-dimensional space of a map. The first maps known to include geographical features were found in ancient Rome. It would take thousands before cartographers can map large areas of land with real accuracy. The contour lines, as we know them today, entered popular use in the mid-1800s with the rise of resource extraction industries such as mining and logging. Credit: thinglink.com How to read the outline lines A quick glance at a topographic map will give you a general idea of the landscape. Is it flat or mountainous? If each line represents an equal elevation point, any change in altitude line spacing, isn't it? For example, several contour lines spaced apart would indicate steep terrain, while spaced lines would indicate a gentler slope. Let's dig deeper. There are three types of contour lines that you'll see on a map: intermediate, index and extra. 1. Index lines are the thickest contour lines and are usually labeled with a number at a given time along the line. This tells you the rise above sea level. 2. Intermediate lines are the thinner, more common lines between the index lines. They generally do not have a number tag. Typically, an index line occurs for five intermediate lines. 3. The additional lines appear as dotted lines, indicating flatter terrain. If you look at an index line, it is easy to read the elevation because it is clearly labeled. However, the interval lines are a little more delicate. To determine their elevation, you will need to know the contour intervals. The contour intervals tell you the change in altitude between two contour lines. You can find the outline interval in the key of the map, usually located under the scale of the map at the bottom center. To understand all map symbols, see the U.S. government document. Example: The contour interval is 50 feet depending on the key to the map. You want to know the elevation of a 3-line intermediate line above an index line labeled 1000. For each line above this index line, the altitude increases by 50 feet. As a result, the interval line in question is 1,150 feet above sea level. Understanding line formations After reading the outline lines on a map for a while, you'll notice that a few distinct shapes appear over and over again. Learning to identify common contour line formations will help you quickly read the topo maps and recognize the different characteristics of the terrain they represent on a map. Let's dig them up. A. Peak ring. The inner ring in the center of several contour loops almost always represents a peak (highest altitude). Sometimes the peak will be represented with a small X and a number indicating elevation. B. Depression ring. Sometimes, however, an inner ring indicates a depression (lowest altitude), which the map will show with a series of small tick marks pointing towards the center (called hatches). Closed loops without hatches are always climbing inside and descending outside. This is called the O rule. This means that the hills and mountains will appear on the map as a cluster of shapes O.C. Cliff. If you see two or more lines converging until they appear as a single line, that represents a cliff. Be careful, however - some cliffs may not appear on the map. If your contour interval was 50 feet, a 40-foot cliff might not appear on the map, since the elevation does not change enough to warrant a new contour line. D Valley. When contour lines cross a valley or stream, they make a sharp or U-shaped V. The rivers, of course, are represented by blue lines that cross the center of the V-shaped. Sometimes called prints, the of this feature always points to their peak. You can also use a topographic map to determine the direction of the flowing river. Because the water flows downhill, the V-shape always points in the opposite direction as the water flows. This is called the V rule. E. Ridgeline. Think of a ridge line as an elongated peak, not coming to a fine point. Instead of a closed inner circle, a ridge line may resemble a large oval. F. Saddle. A saddle is a low area between two higher elevation points. The identification of stools can show you the fastest route through hilly areas. They appear as hourglasses between two concentric circles. G. Ledge. The ledges or flat areas on the side of a mountain appear as protruding U-shaped shapes that point far from the summit. Credit: bernhard-edmaier.de topographical map tools of course, paper maps are not the only topographical tool out there. Smartphone apps and computers can provide any topographic map you may need quickly and accurately, even out of reach of wifi and cellular signals. Google Maps. You can turn their topographic view (with contour lines) by selecting the Terrain layer from the options menu. Gaia. iPhone users can use Gaia GPS. This is an elegantly designed map program with topographic maps available for download. You can download maps when you have data or wifi before venturing off-grid. The app itself is free, but membership (which is required for offline topo cards) is \$9.99. The app is also available for purchase on Android. Backcountland navigator. Don't worry, Android users. The Backcountry Navigator app provides the same service, with a similar configuration. The demo version of the app is free. But, again, the ability to download maps for offline use is \$11.99. A Caltopo. My favorite. This is a free browser-based card tool that allows you to print custom topo cards... or transfer them to your GPS device. Originally designed for search and rescue, Caltopo offers a lot of customization. You can draw routes freely and switch between different types of topography such as shading, contours and satellite images. It also allows you to collaborate with other users and share your custom cards online. Mytopo. Similar to Caltopo, but focuses mainly on the United States and Canada. They provide detailed custom maps, including topo maps, satellite images and public hunting maps anywhere in the United States. Super professional quality cards, which you can see online for free or have shipped in the form of high quality prints for a small fee. By Chris CageChris launched Greenbelly Meals in 2014 after hiking on the Appalachian Trail for 6 months. Since then, Greenbelly has been written by everyone from Backpacker Magazine to Fast Company. He has written How to Hike the Appalachian Trail and is currently working from his laptop all over the world. Instagram: @chrisrscage. Affiliate Disclosure: We aim to provide honest information to our readers. We do not send sponsored or paid messages. In exchange for reference sales, we can receive a small small through affiliate links. This message may contain affiliate links. This has no additional cost to you. You.

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