

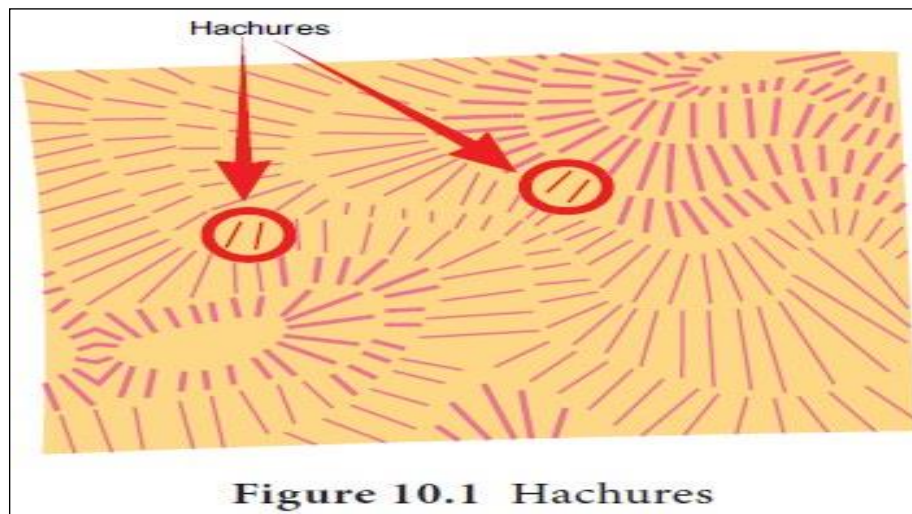
Unit-1

Methods of Representing Relief Features

The important methods of representing relief features are **hachures, contours, form lines, spot heights, bench marks, trigonometrical points, hill shading, layer-colouring**, and so on. Each method has its own merits and demerits in depicting the relief of the land.

1. Hachures

Hachures are small lines drawn to represent slopes. The lines are drawn thicker to represent steeper slopes and thinner for gentle slope. The slopes above 45° is depicted completely in black colour.



2. Contours

Contours are imaginary lines connecting places having same elevation above mean sea level. They are drawn in brown colour.

3. Form lines

Form lines are like contours representing features that are not actually surveyed. They are shown by broken lines.

4. Spot heights

Spot heights are heights of places surveyed and they denote the actual height above mean sea level. They are shown in maps as dots with their respective values written beside it.

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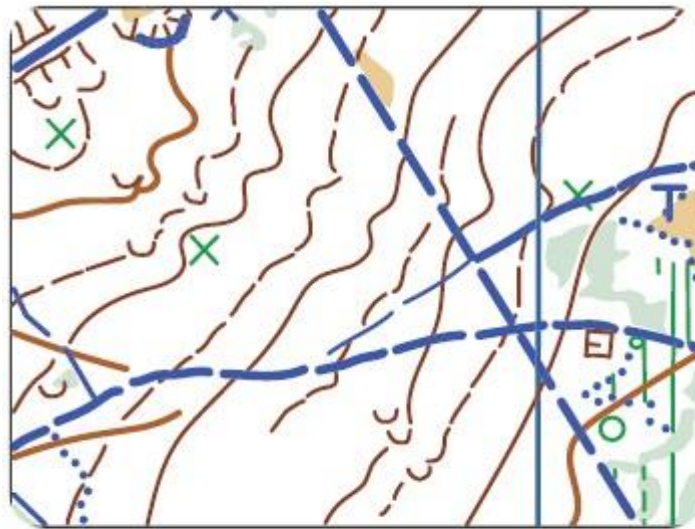
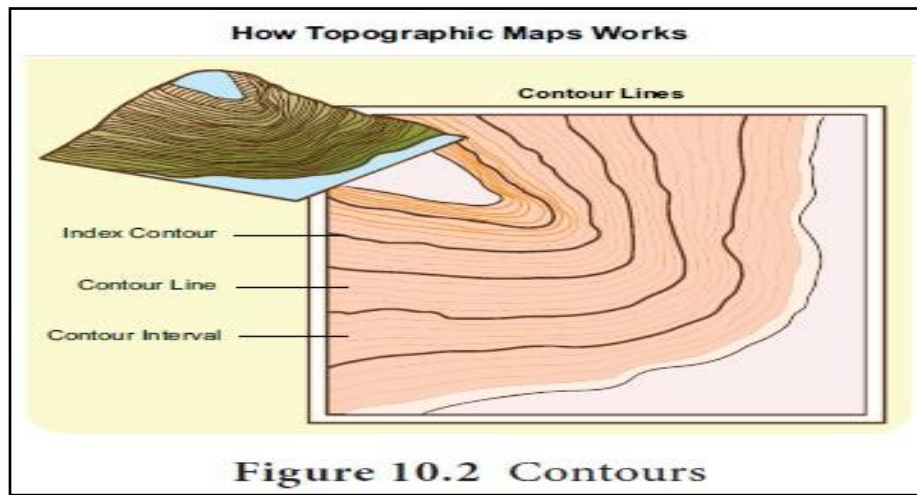
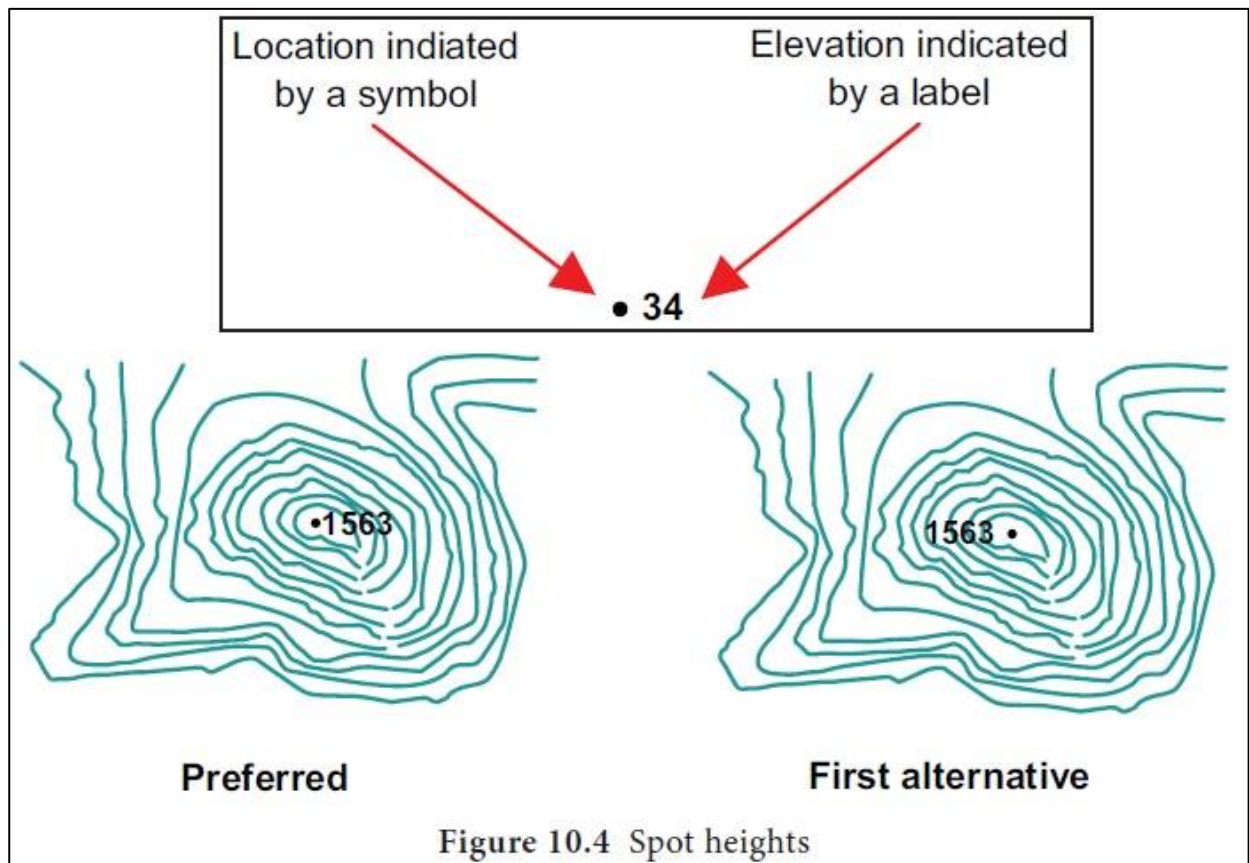


Figure 10.3 Form lines

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5. Bench marks

Bench marks represent the actual height of a tall structure like a tall building, pillar, bridges or any other object of permanent nature. They are marked with the letters BM with the respective height.

6. Trigonometrical Stations

Trigonometrical Stations are points included in the triangulation survey and are marked in the map with a triangle with the actual height of the place.

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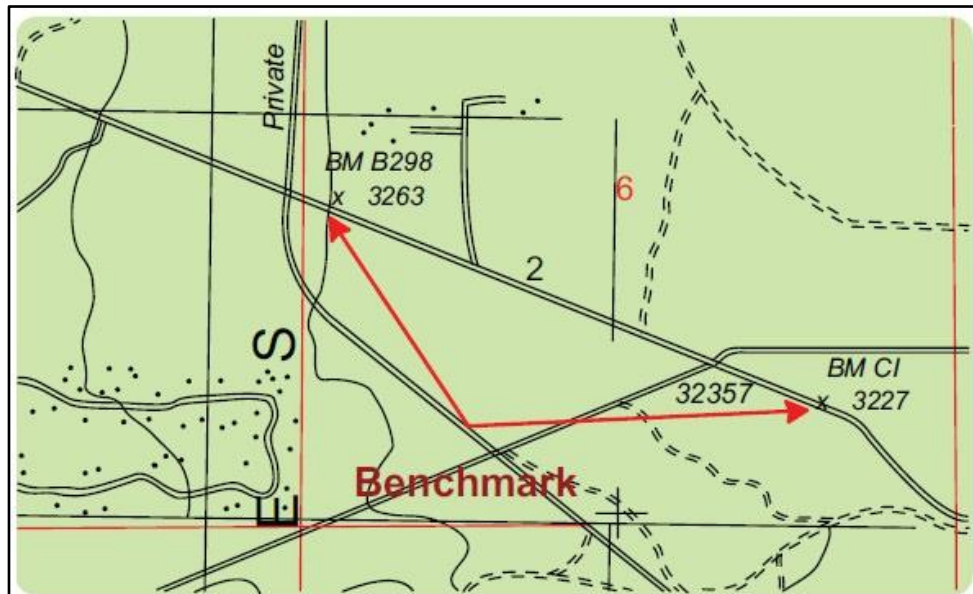


Figure 10.5 Benchmark

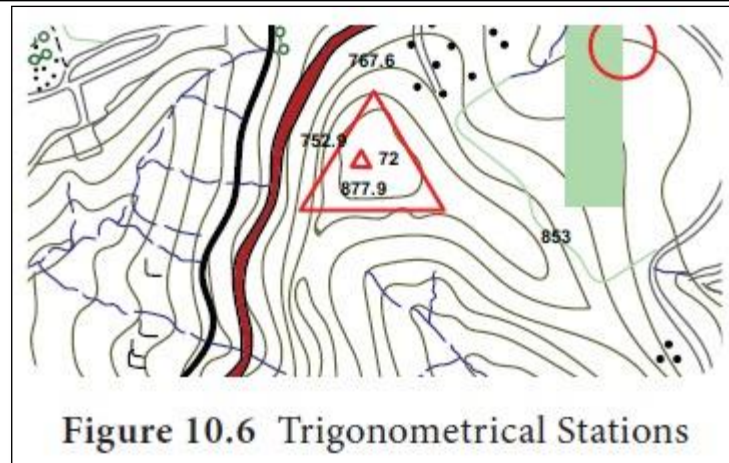


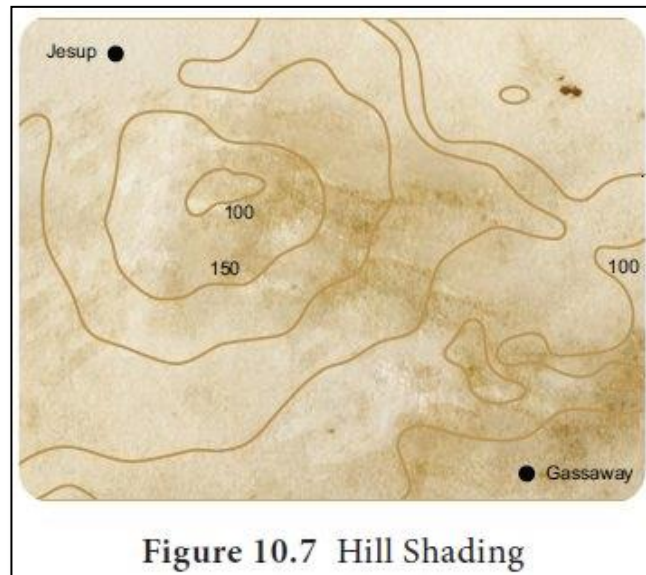
Figure 10.6 Trigonometrical Stations

7. Hill Shading

Hill Shading (levels of gray) is a method of representing relief on a map by depicting the shadows that would be cast by elevated areas if light were shining from a certain direction.

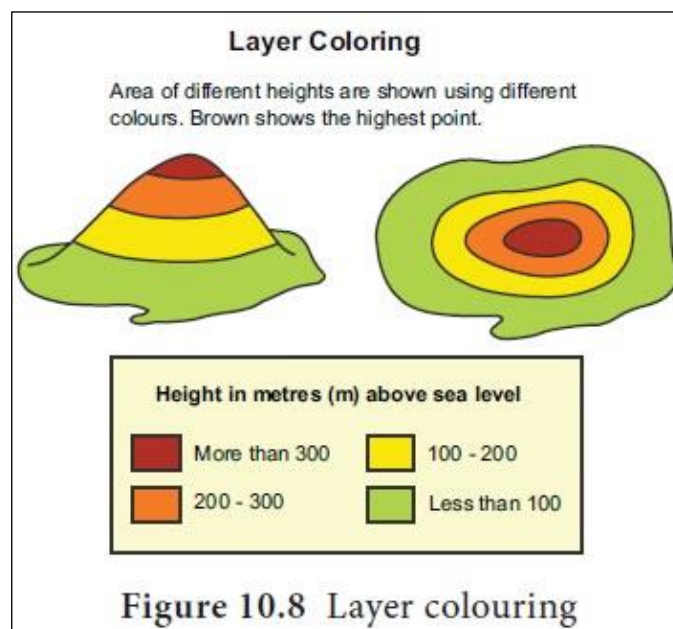


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8.Layer Colouring

Layer Colouring is a method showing relief in layers and each layer is given a different colour. Physical maps in atlas and wall maps use this method to show relief features. Ocean depth is also shown in various shades of blue. There is an international recognition for colours used in these maps. Accordingly blue represents water bodies, green for plains, various shades of brown for highlands and white for snow covered peaks.



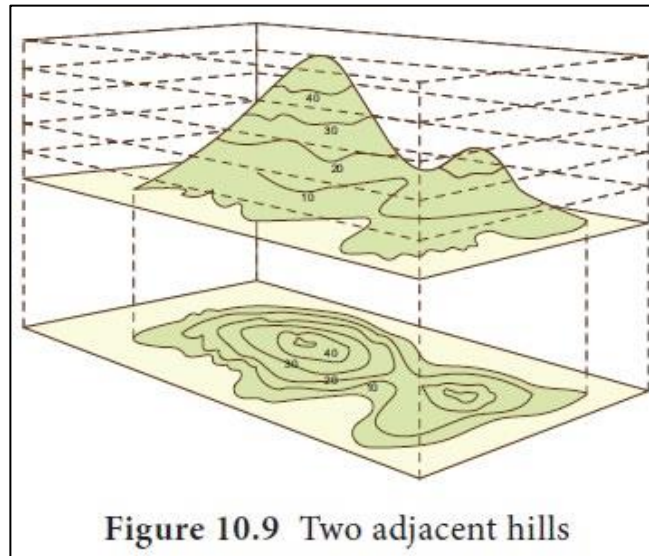
9.Contours

Contour is universal method to show the relief. The unit of measurement of contour is generally metres above the mean sea level. Contour has an advantage that it does not hide the other features drawn on the toposheet. Reading contours is a skill that

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helps us to understand the actual landscape. The skill can be obtained by understanding the salient features of contours. They are as follows:

- Contours are drawn at regular intervals in brown colour. Generally 20m interval is followed in 1:50,000 and 100m interval in 1:250,000 toposheet.
- Every fifth contour is a dark line to enhance map reading.

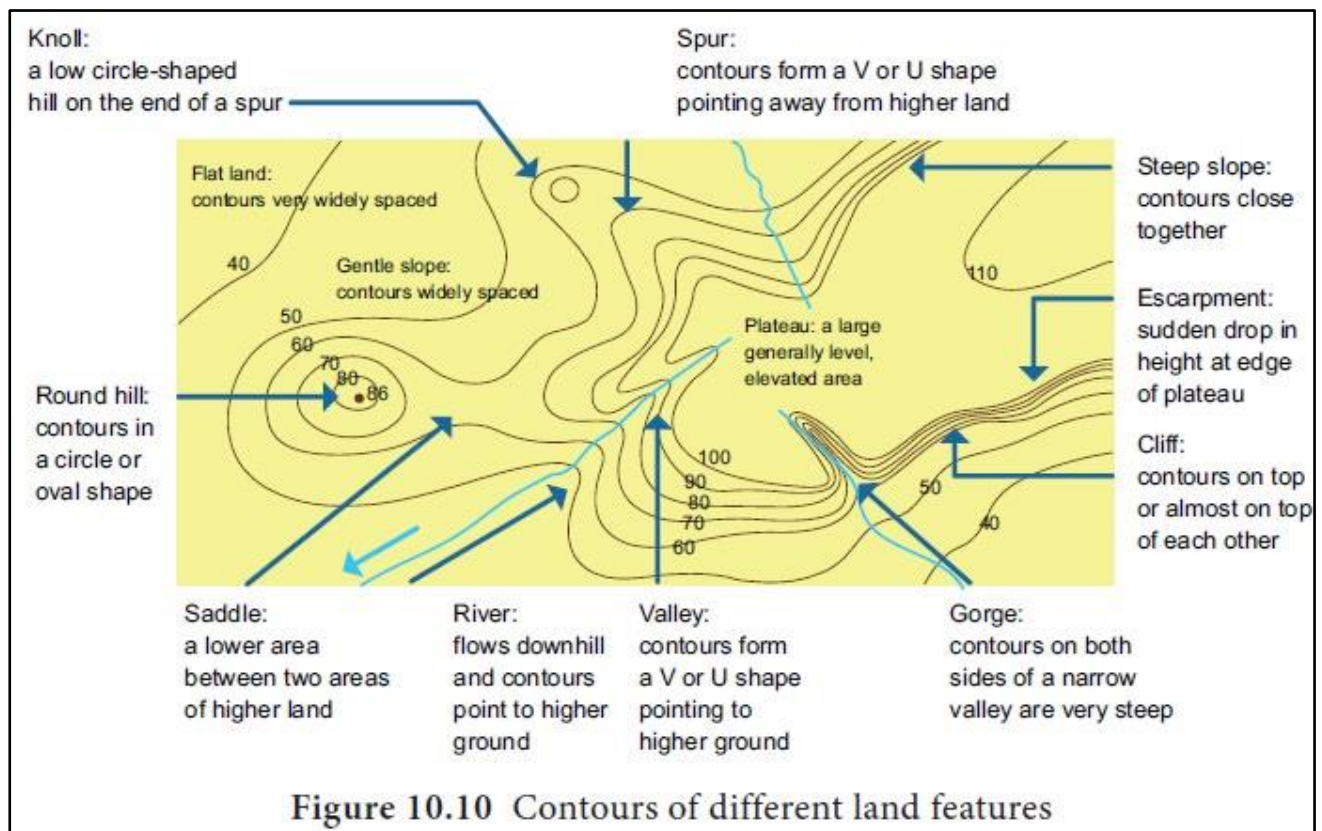


- The value of contour is printed by breaking the contour line and also given at the edge of the toposheet.
- Generally contours never cut or cross each other. In case of water fall and cliffs contours almost touch a same point or a line. In over hanging cliff the contours cut each other.

Figure 10.10 gives the general features shown by contours.

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Drawing Cross Section from Contours

The following figure shows the way two adjacent hills are shown by contours.

a) Two adjacent hills shown by contour

Drawing cross section of the contours allows one to know the exact landform depicted in the toposheet.

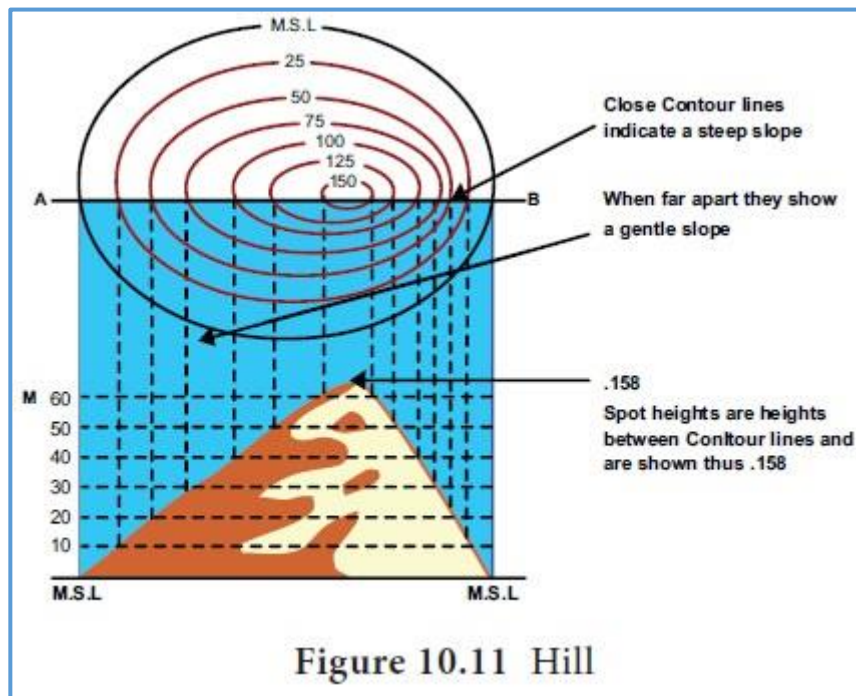
Drawing cross section involves selecting a section within the portion of the contour, marking the intersections of these selected contours on suitable vertical scale and joining these points to identify the land form. Generally closely spaced contours indicate that the slope is steep, and widely spaced contours indicate that the slope is gentle. The following pictures show contours and cross sections of a hill and a depression.

Steps to be followed to draw contours and the cross section:

- a. Draw the contours in brown colour.

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- b. Draw a line AB for which the cross section has to be drawn.
- c. Below the contour draw required number of horizontal lines of equal distance and interval (2mm) to represent all the contour values given in the diagram
- d. Write the value of all the contours in such a way that the **lowest value of the contour forms the base line** and the values increase according to the contour interval given in the diagram.



- e. Draw vertical lines from each intersection point on the line AB with the contours to the horizontal line representing its value.
- f. Join all these points to identify the feature shown.
- g. Shade the feature in black to complete the cross section.

General instruction to identify features shown in contours:

- A **hill** is shown by circular contours with height less than 1,000 m.
- A **plateau** is an elevated land represented by innermost contour roughly rectangular in shape and closer outer contours. The height may generally vary from 300m to 600 metres. If a plateau is enclosed by mountains, it is called intermontane plateau and when it is formed in the foot hills it is called piedmont plateau.
- A **ridge** is an elongated and steep sloped high mountain with two or more peaks shown by elliptical contour lines. A narrow low depression between two peaks

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is called **Col**. Saddle is similar to a col but higher, broader and gently sloping from peaks of a ridge.

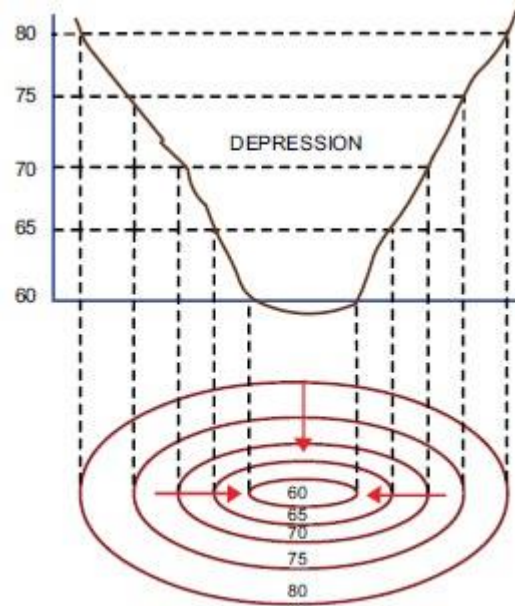


Figure 10.12 Valley

- **A valley** is a long depression with steep slope formed by the vertical erosion of the river within the stretch of upland. The contours bend sharply across the river in a 'V' shape with the apex pointing towards higher elevations.
- **Spurs** are projection of land from higher to lower ground. Contours bend smoothly with the apex of the 'V' pointing towards lower ground.
- **A waterfall** occurs when there is a sudden difference in height of the river valley. A **waterfall** is a place where water flows over a vertical drop or a series of steep drops in the course of a stream or river.

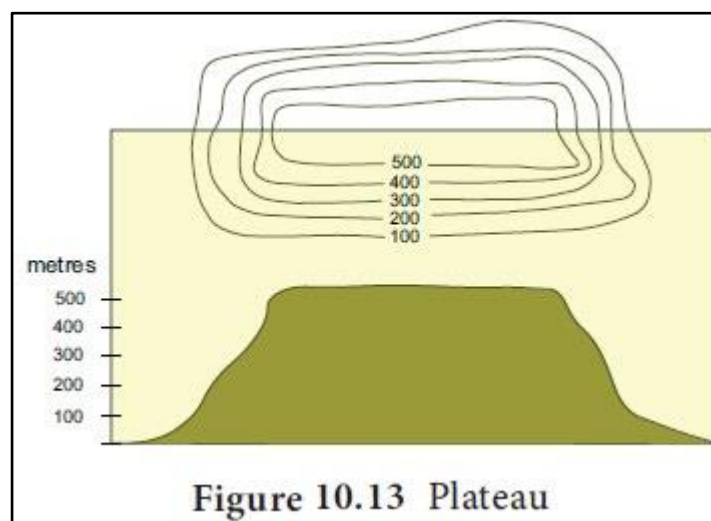


Figure 10.13 Plateau

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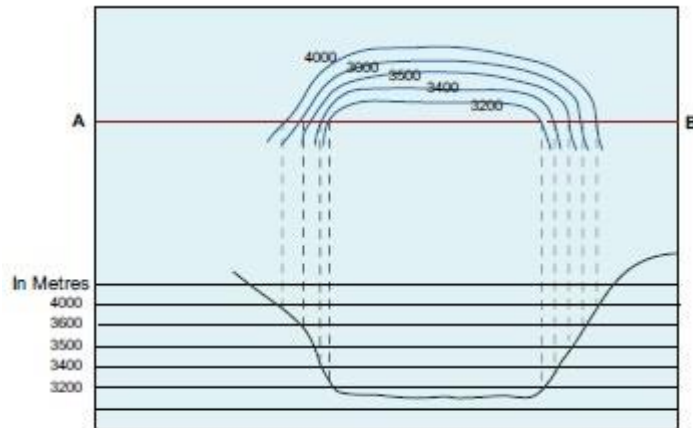


Figure 10.14 Inter montane plateau

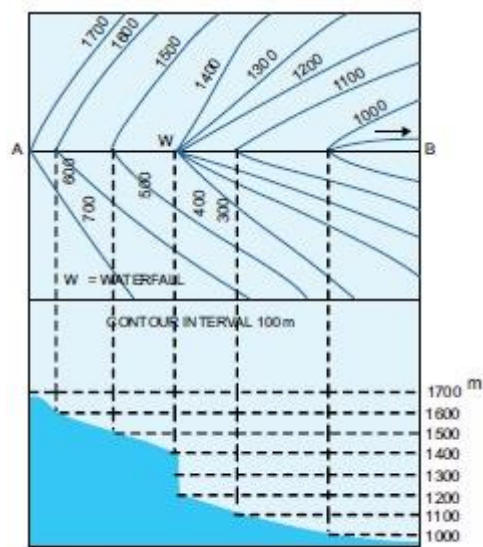


Figure 10.15 Waterfall

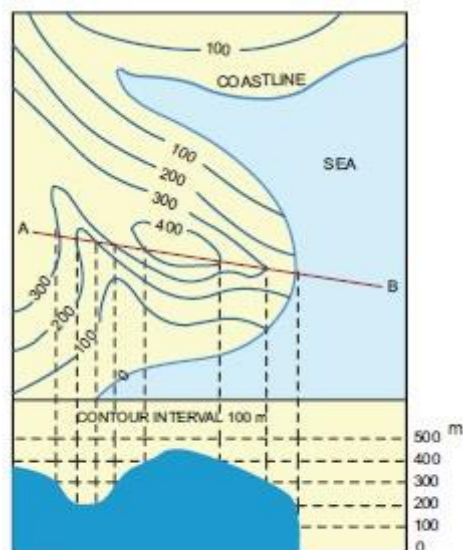


Figure 10.16 Sea cliff

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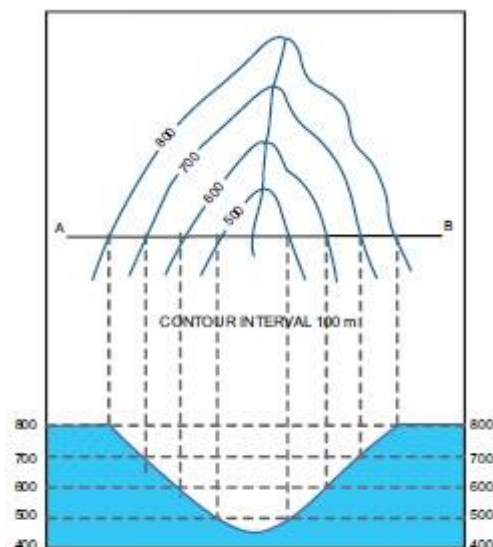


Figure 10.17 V-Shaped valley

It is represented by contours meeting at a same point on the hill slope. The difference between the value of the highest and the lowest contour touching the same point gives the height of the waterfall.

- **A cliff** is a steep sloped exposure of a valley or coast. If it is near sea we call it sea cliff.
- **Gorge** is a very steep valley at higher elevations formed by river erosion. It can be identified by closely converging contours in the river course.
- **A volcano** is represented by closed contours with the innermost contours having lesser values than the surrounding, denoting the crater depression.

Exercise 1

Match the following

