A topographic map of the Yosemite Wilderness area, showing contour lines, peaks, and water bodies. The map is overlaid with a grid. The title "Introduction to Topographic Maps" is centered in large black font. Various geographical features are labeled, including "Yosemite Wilderness", "Doghead Peak", "Quarry Peak", "Matterhorn", "Wilson", "Benson Pass", "Sister Lake", "Doe Lake", "Tahulugh Lake", "Chamrock Lake", "Comp Creek", "Rock Creek", "Matterhorn Canyon", "National Scenic Creek", and "Matterhorn Pass".

# Introduction to Topographic Maps

A topographic map of the Yosemite Wilderness area, showing contour lines, peaks like Doghead Peak and Quarry Peak, and features like Rock Creek, Wilson Creek, and Matherhorn. The map is overlaid with a grid.

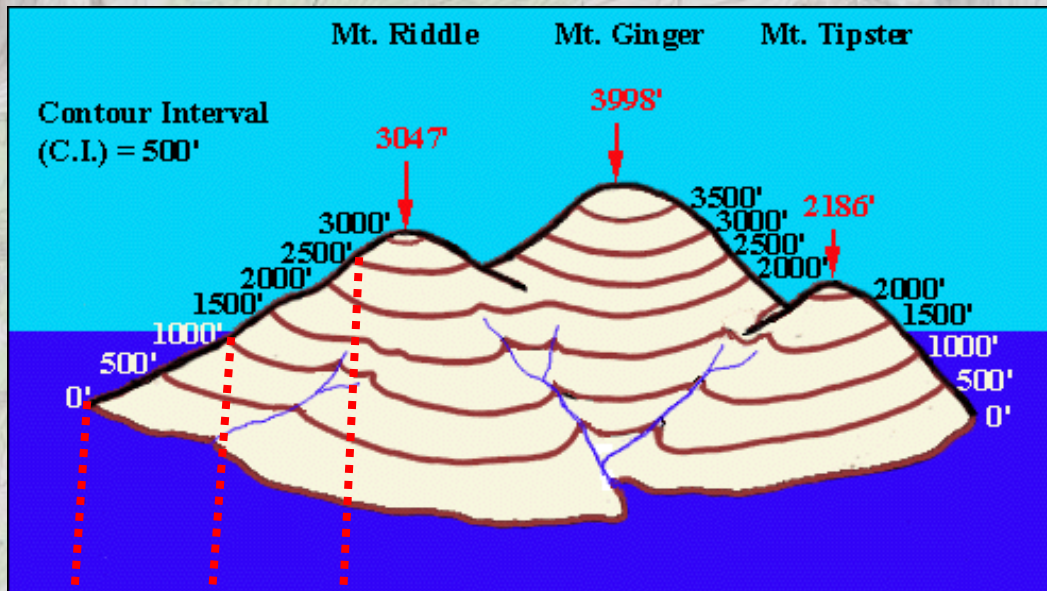
# Topographic Maps

Topographic maps are two dimensional models of the Earth's, which is considered three dimensional.

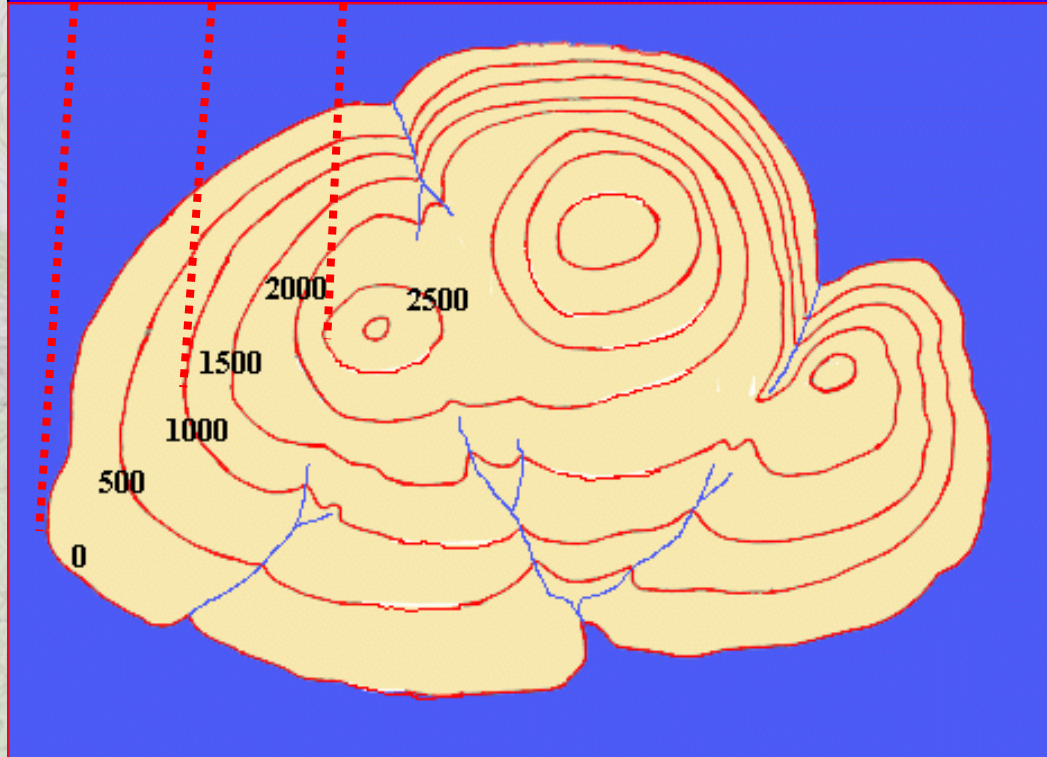
Topographic maps are also known as contour maps.

Topographic maps illustrate elevation above sea level using contour lines.

Real World



Contour Map



# Topographic Maps

## Contour Line

A line on a map that connects points of equal elevation.

These lines not only show elevation but also show the shape of the land.

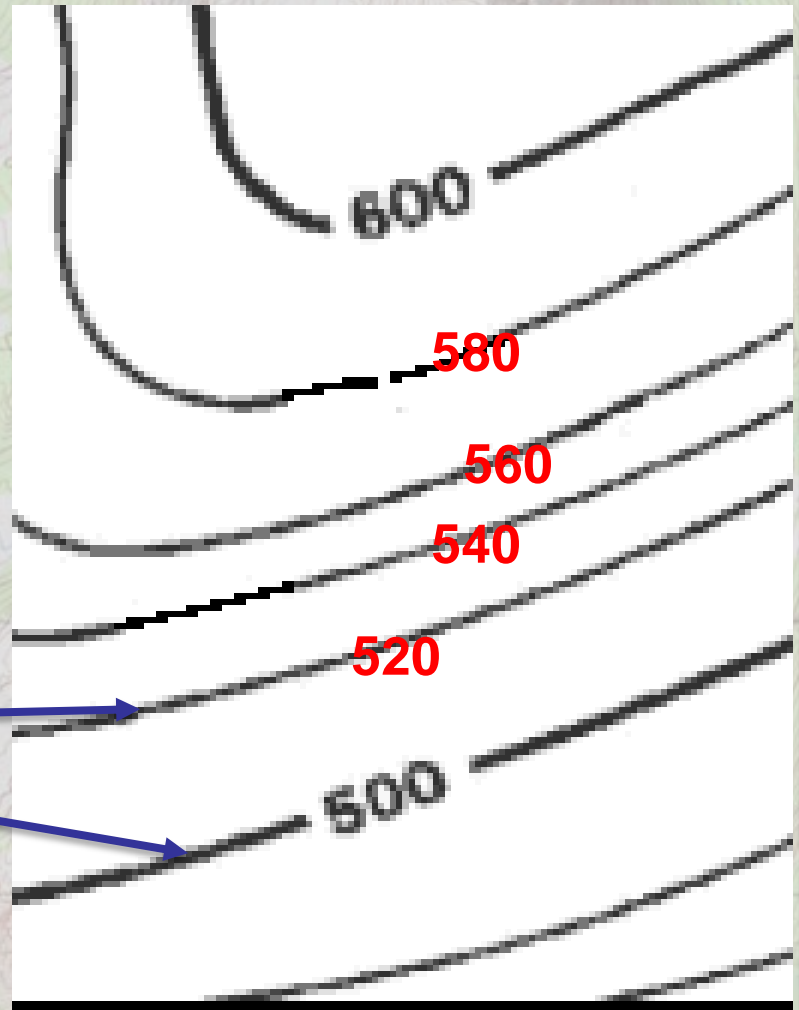


# Topographic Maps

## Contour Interval

This is the difference in elevation between each line. The spacing is always equal.

This contour interval is 20 feet.



# Topographic Maps

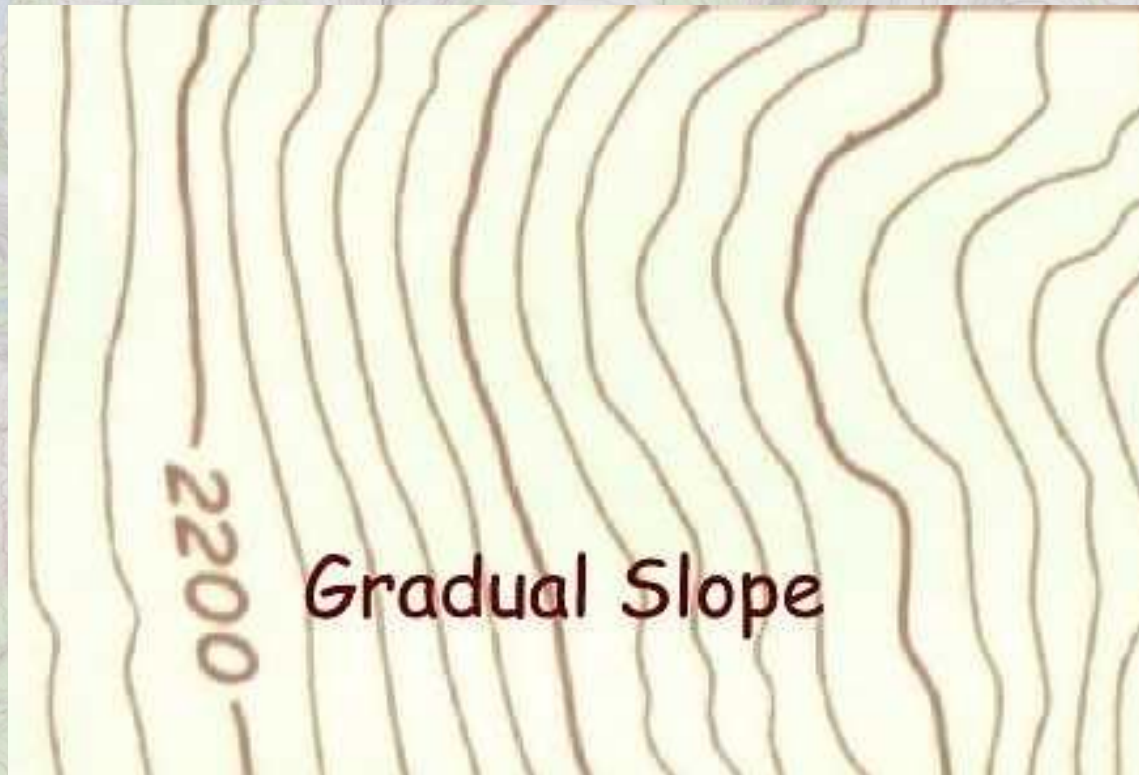
## Index Contours

These help the map reader determine elevation. Every fifth line is darker and has an elevation printed on it.



# Rules for Contours

1. Contour lines never cross each other.



# Rules for Contours

2. Contours always form closed loops even if not shown on the map.

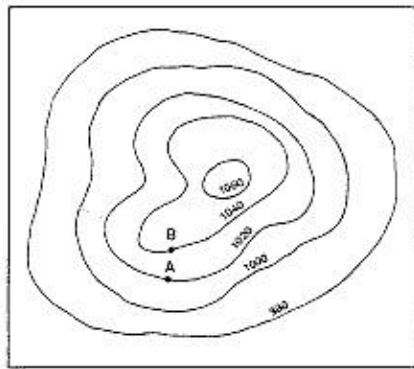
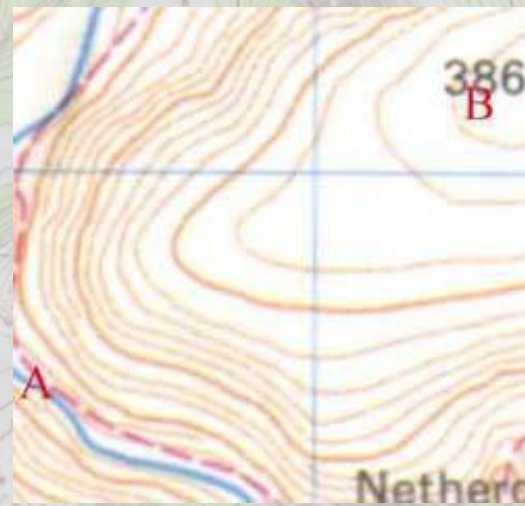


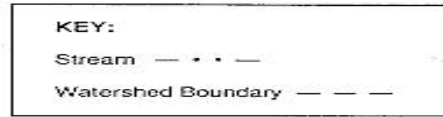
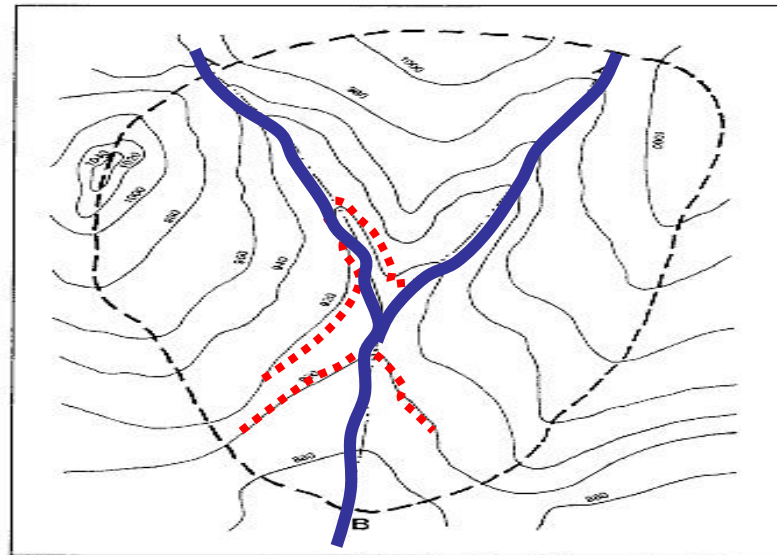
Figure E-1: Isolated Hill





# Rules for Contours

3. Contour lines bend upstream (uphill) when crossing a river.

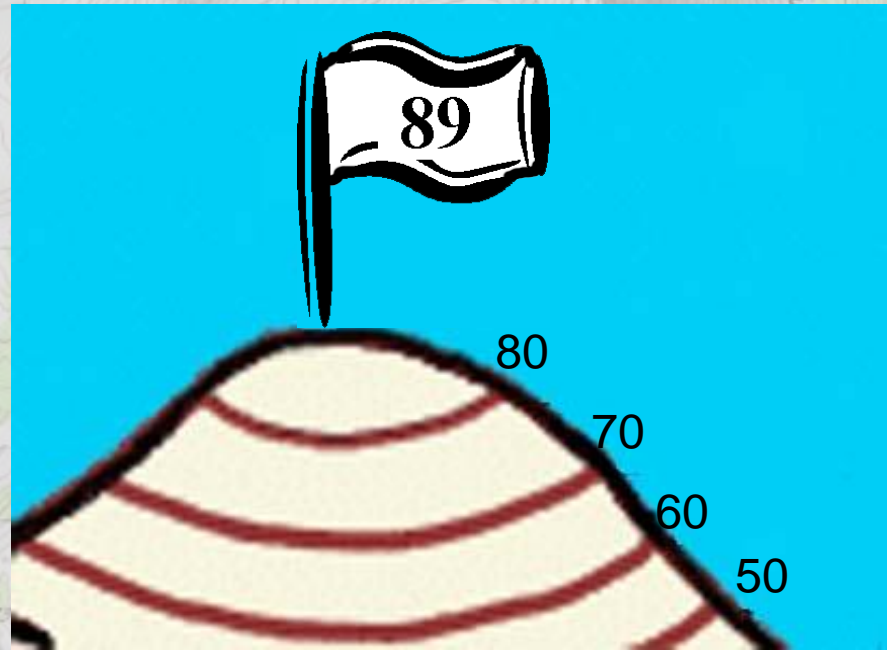


**Figure E-3: Idealized Watershed Boundary**

# Rules for Contours

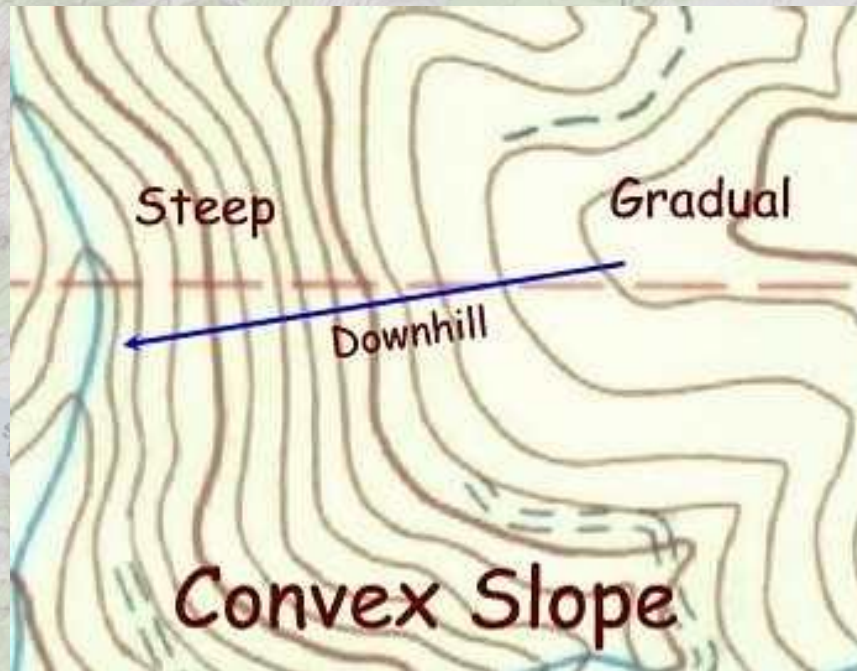
4. The maximum possible elevation for a hill is one less than the value that would have designated the next contour line.

In other words, the highest possible elevation of the hill is just below the value of the next contour line, even though that line is not shown.

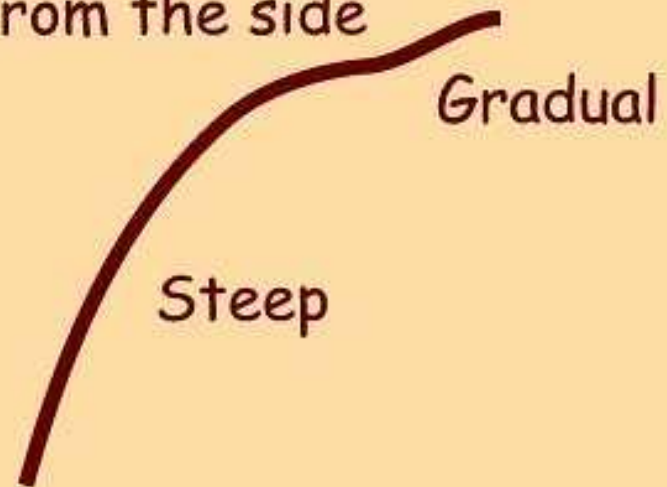


# Closely-Spaced Contours

On a steep slope, the contour lines are close together.



Looking at the Slope  
from the side

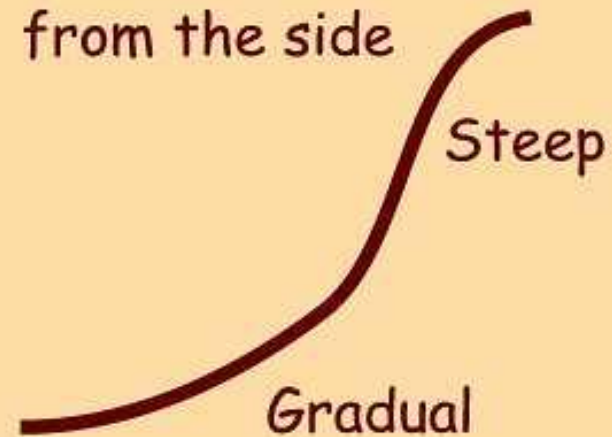


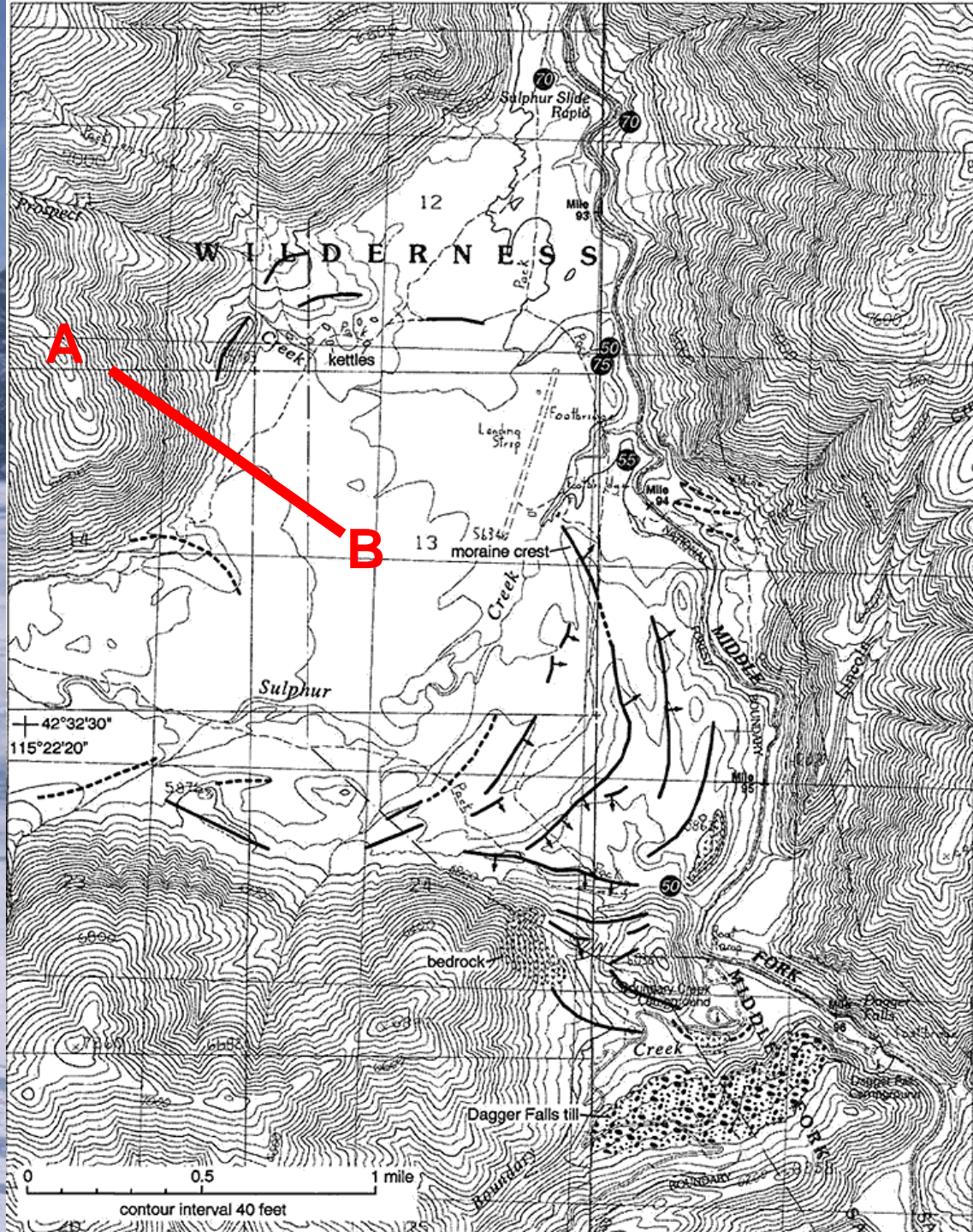
# Widely-Spaced Contours

On a gradual slope, the contour lines are far apart.



Looking at the slope  
from the side





# Depressions

Contour lines that show a depression, crater, or sinkhole on a map are represented by dashed lines (hachure marks) on the inside of a contour line.

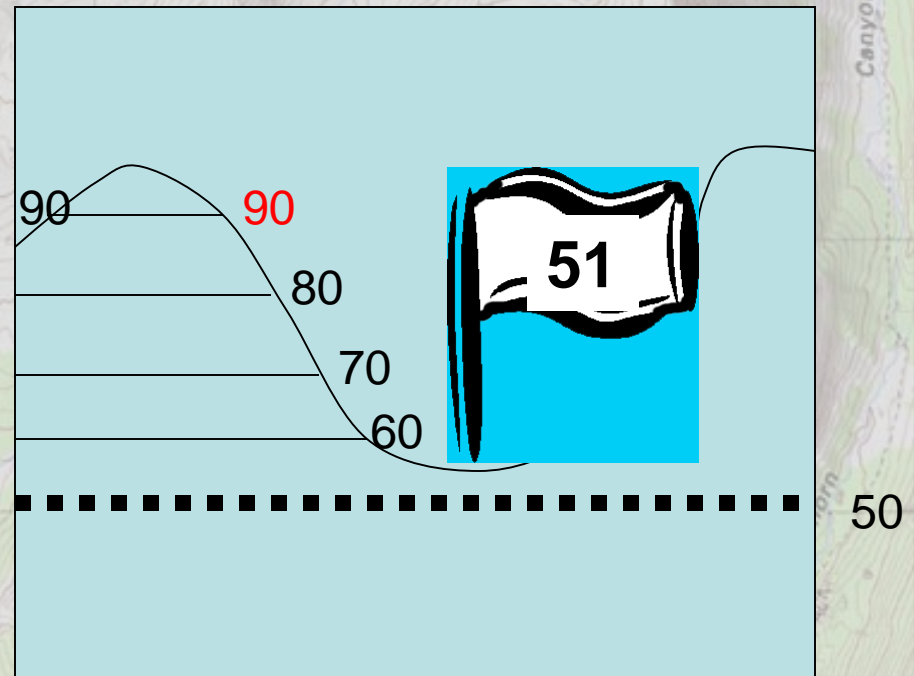


The elevation of the first depression contour is the same as the nearest regular contour line.

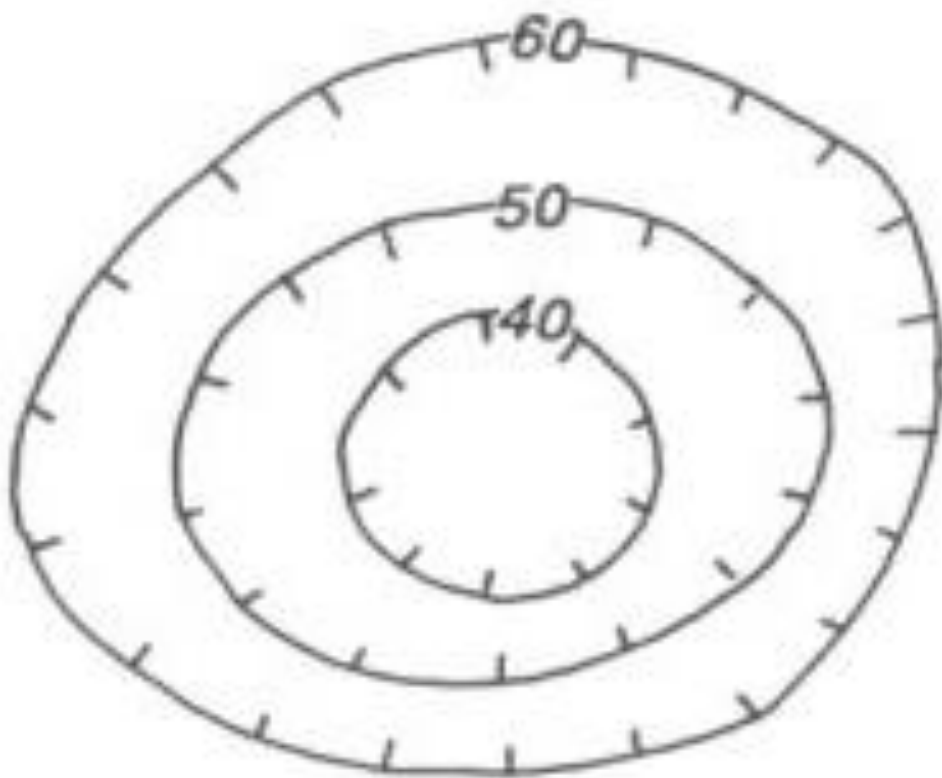
# Rules for Contours

The lowest possible elevation for a depression is one more than what the next contour should be.

The lowest possible elevation of a depression is just above the value of the next line that is not shown.



YOSEMITE WILDERNESS



Rock  
Rock  
Creek

Doghead  
Peak

Quarry Peak

Doe Lake

Canyon

Sister  
Lake

Matterhorn  
Peak

Benson  
Pass

NATIONAL SCENIC  
Creek

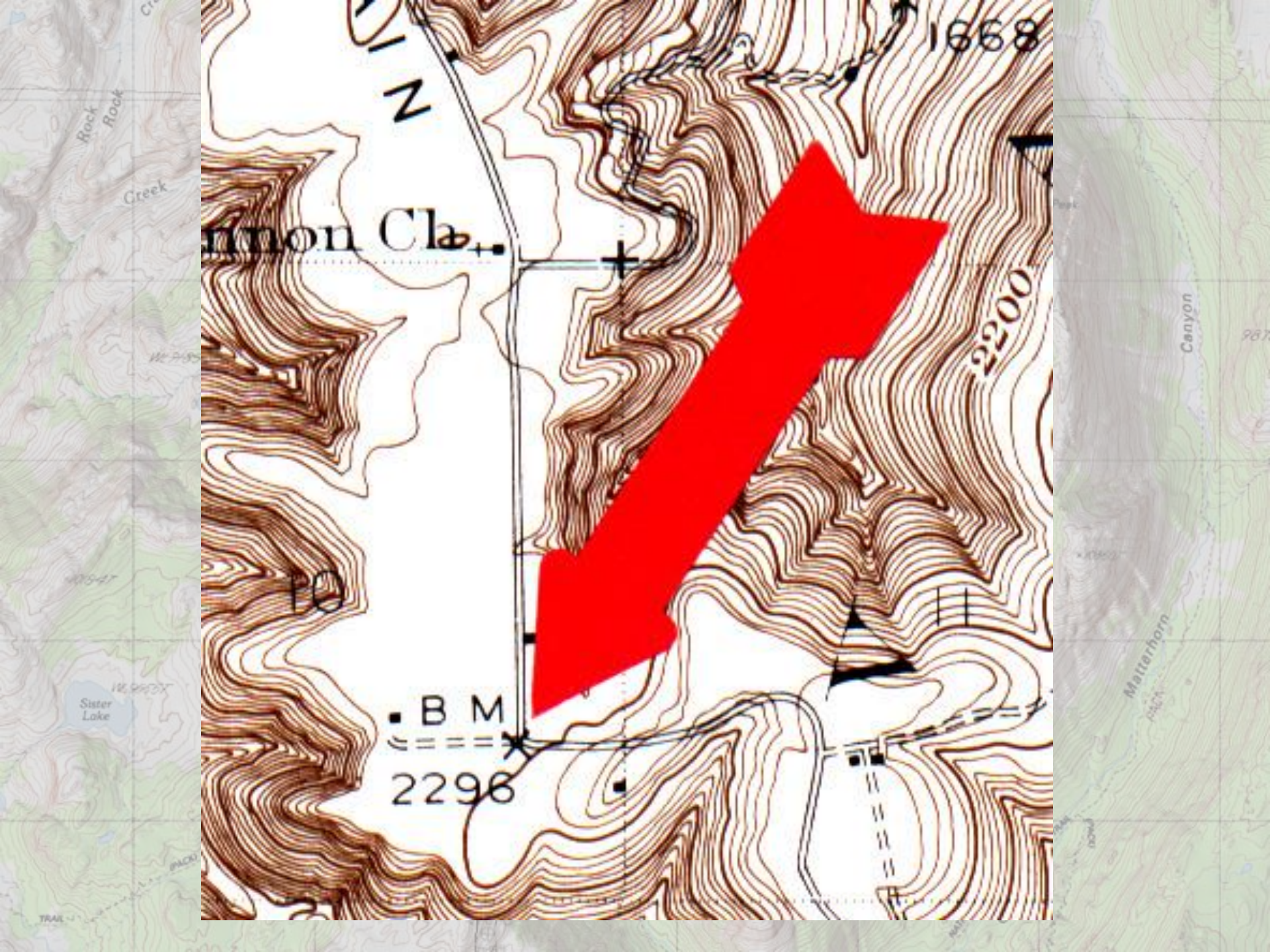


# Benchmarks

Benchmarks are locations whose exact elevation is known and is noted on a brass or aluminum plate.

Benchmarks are indicated on maps with an X followed by *BM*.





Simon Creek

1668

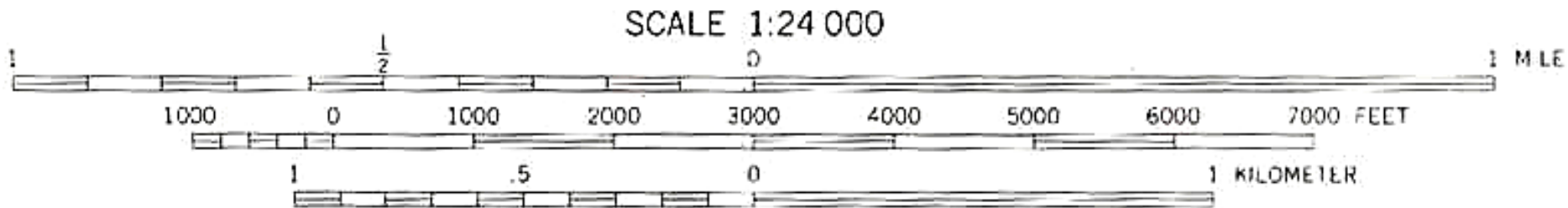
2200

B M  
2296

# Map Scales

Map scales indicate the distance on the map compared to distance in the real world.

Graphical scales use a line divided into equal parts and marked in units of length.



CONTOUR INTERVAL 40 FEET  
SUPPLEMENTARY CONTOUR INTERVAL 20 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

A topographic map of the Yosemite Wilderness area, showing contour lines, peaks like Doghead Peak and Quarry Peak, and features like Rock Creek and Comp Creek. The title 'Yosemite Wilderness' is printed across the top.

# Map Scales

Numerical scales display a ratio to represent the distances in the real world.

**1:63,360**

One inch on the map equals 63,360 inches in the real world because there are 63,360 inches in a mile.