

# Unit 1: Mapping and Astronomy

# Do Now

In your notebook, write your thoughts on the following:

-What do you know about the beginning location and trajectory of the most recent hurricanes (Harvey or Irma)?

-In general, at what point should we be concerned about a hurricane in our area?

# Daily Goal

Today we will learn to read coordinate points on a map.

## **Major Questions**

- What do lines of longitude measure?
- What do lines of longitude measure?
- How do I find and read a coordinate point on a map?

# What do you know about maps?

In your groups, discuss what you know about the following words:

Longitude

Latitude

Hemispheres

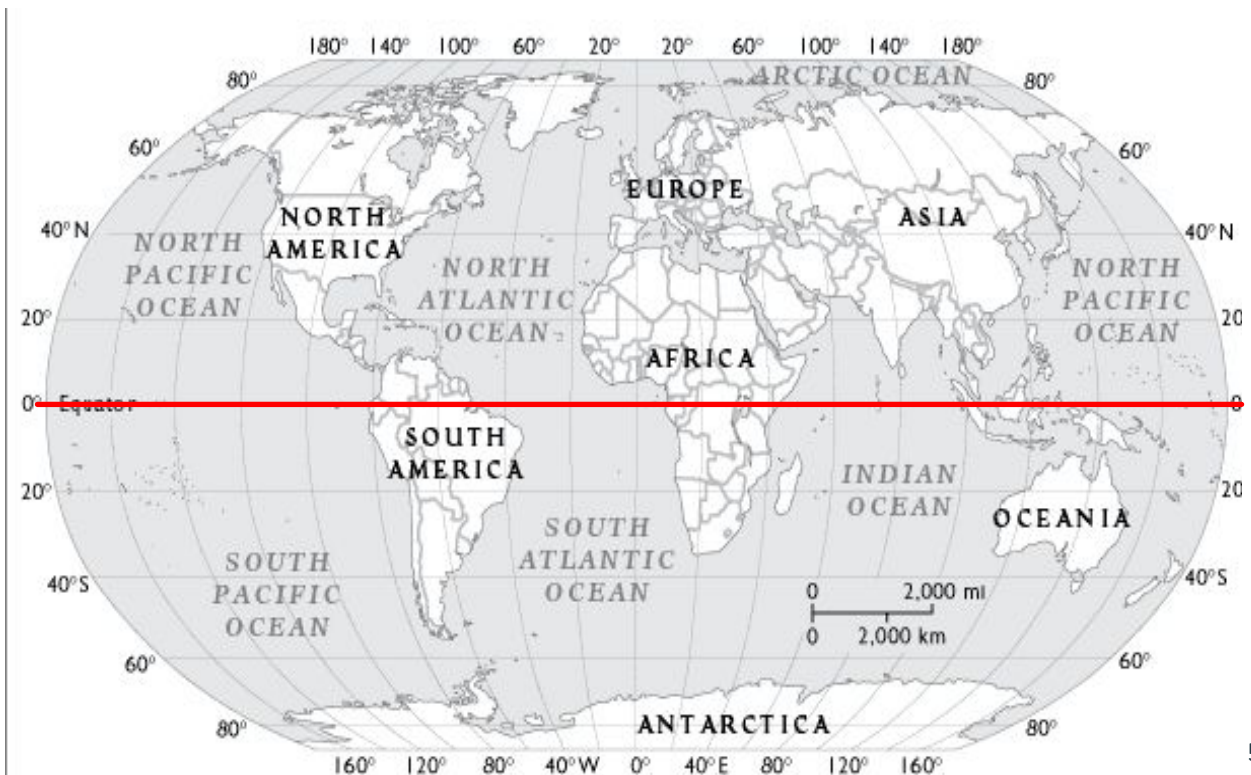
Equator

Prime Meridian

# Latitude

- These are horizontal lines, along the X-axis.
- Latitude is the distance in ° North or ° South of the equator

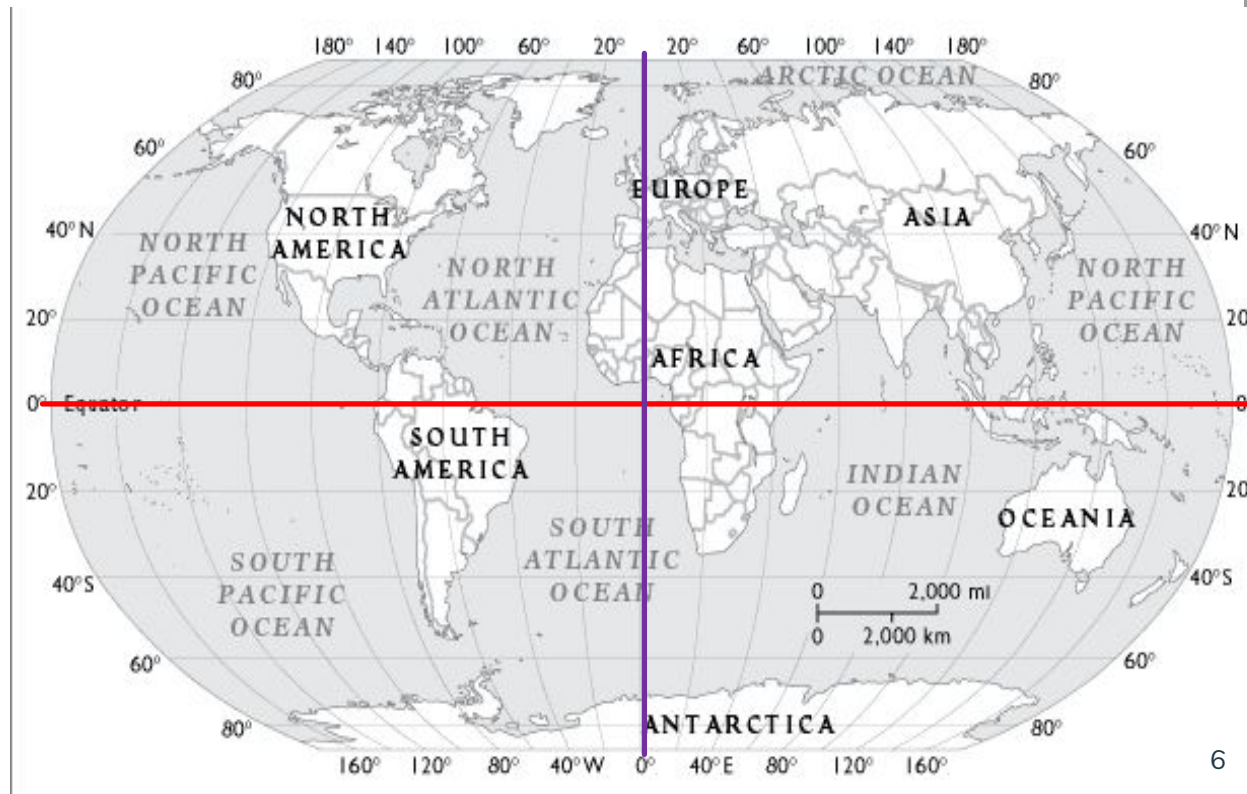
Highlight the Equator:



# Longitude

- These are vertical lines, along the Y axis.
- Longitude is the distance in ° East or ° West of the Prime Meridian

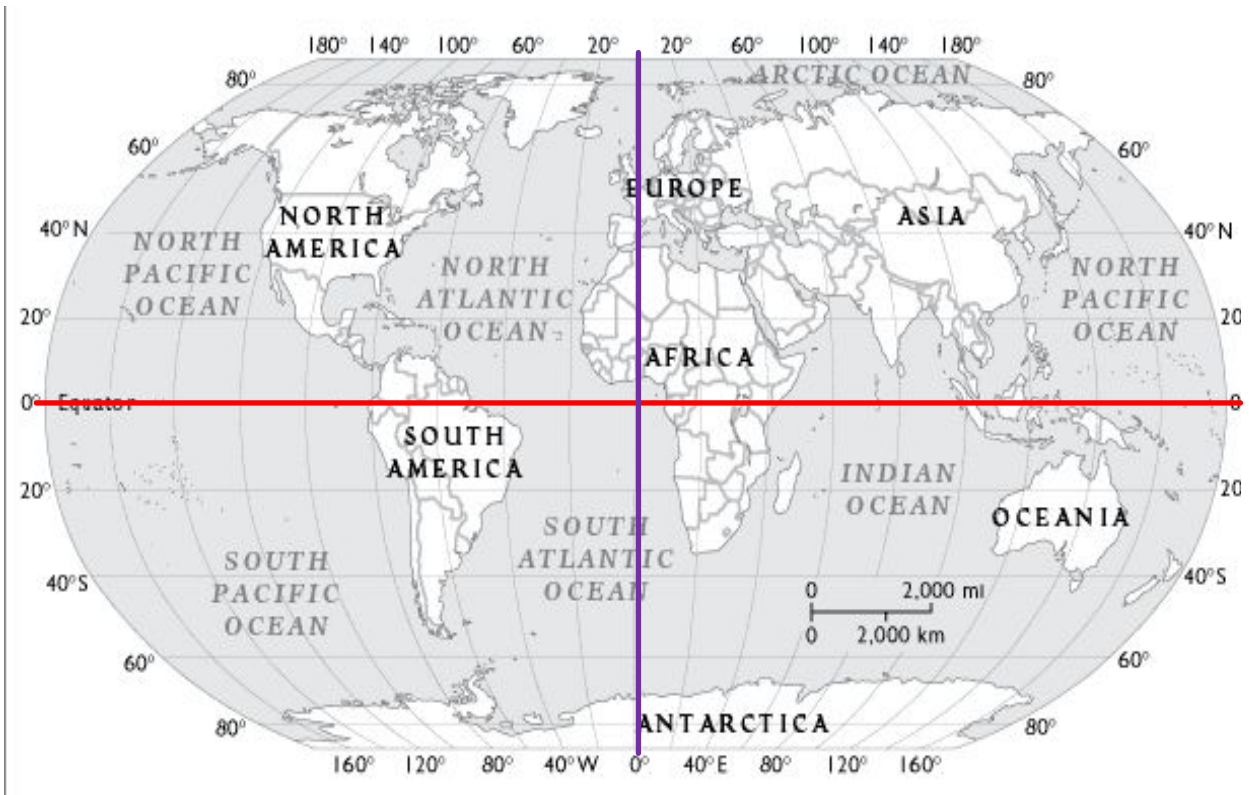
Highlight the Prime Meridian:



# Hemispheres

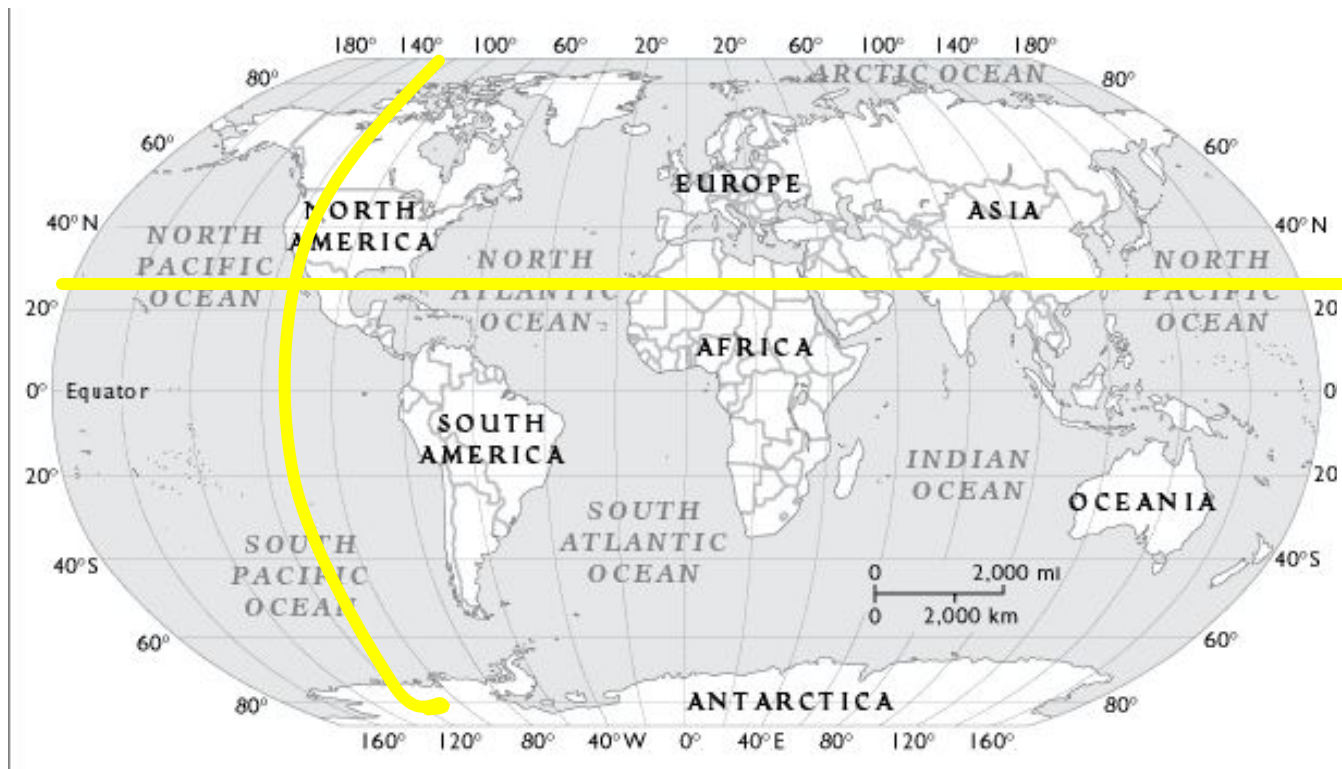
- The earth is divided into halves, or hemispheres by the equator and Prime Meridian

Label the  
N, S, E, and W  
hemispheres:



# Absolute Location

- Where the latitude and longitude lines come together







# ***Notebook Check***

How do your notes look?

→ Have you been copying ***only*** the most important facts?

→ Don't waste time writing every word!

***Latitude:*** horizontal lines on x-axis; °N and °S of equator  
(on eq. = 0°)

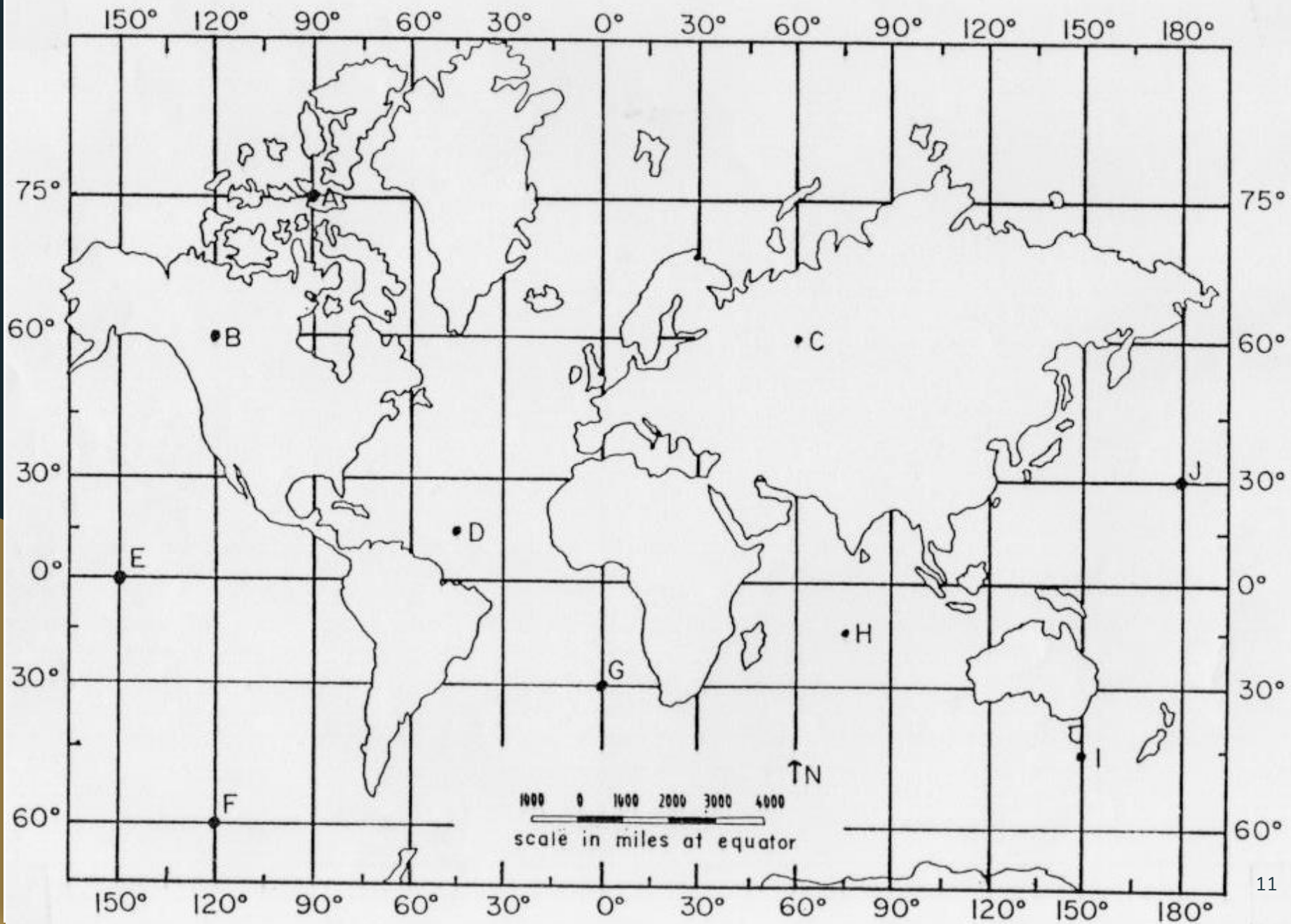
***Longitude:*** vertical lines on y-axis; °E and °W of Prime  
Meridian (on PM = 0°)

***Hemisphere:*** N, S, E, and W; divided by eq. and P.M.;  
origin = (0,0) where eq. and P.M. cross

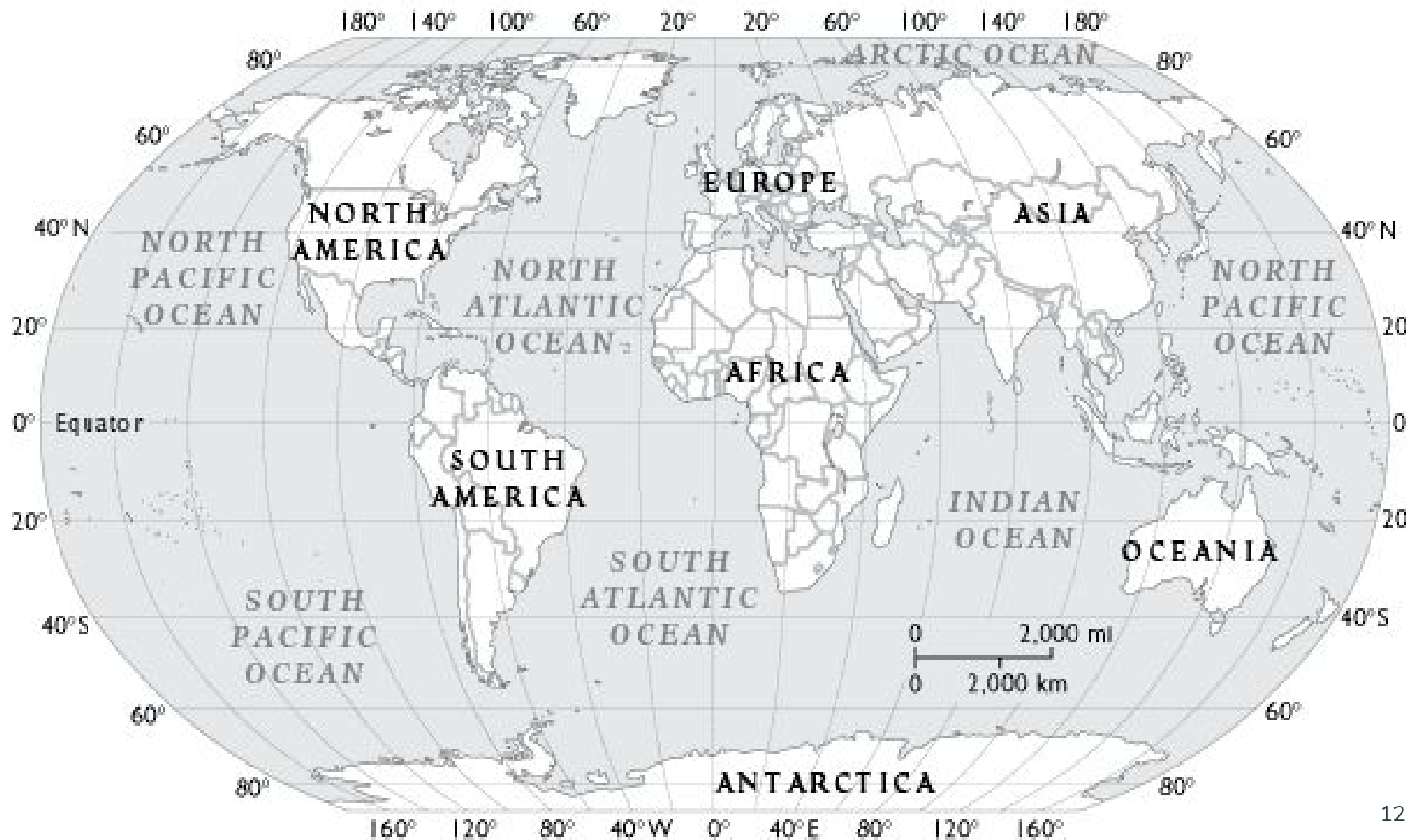
***Absolute Location:*** lat and long points

# How to find Absolute Location

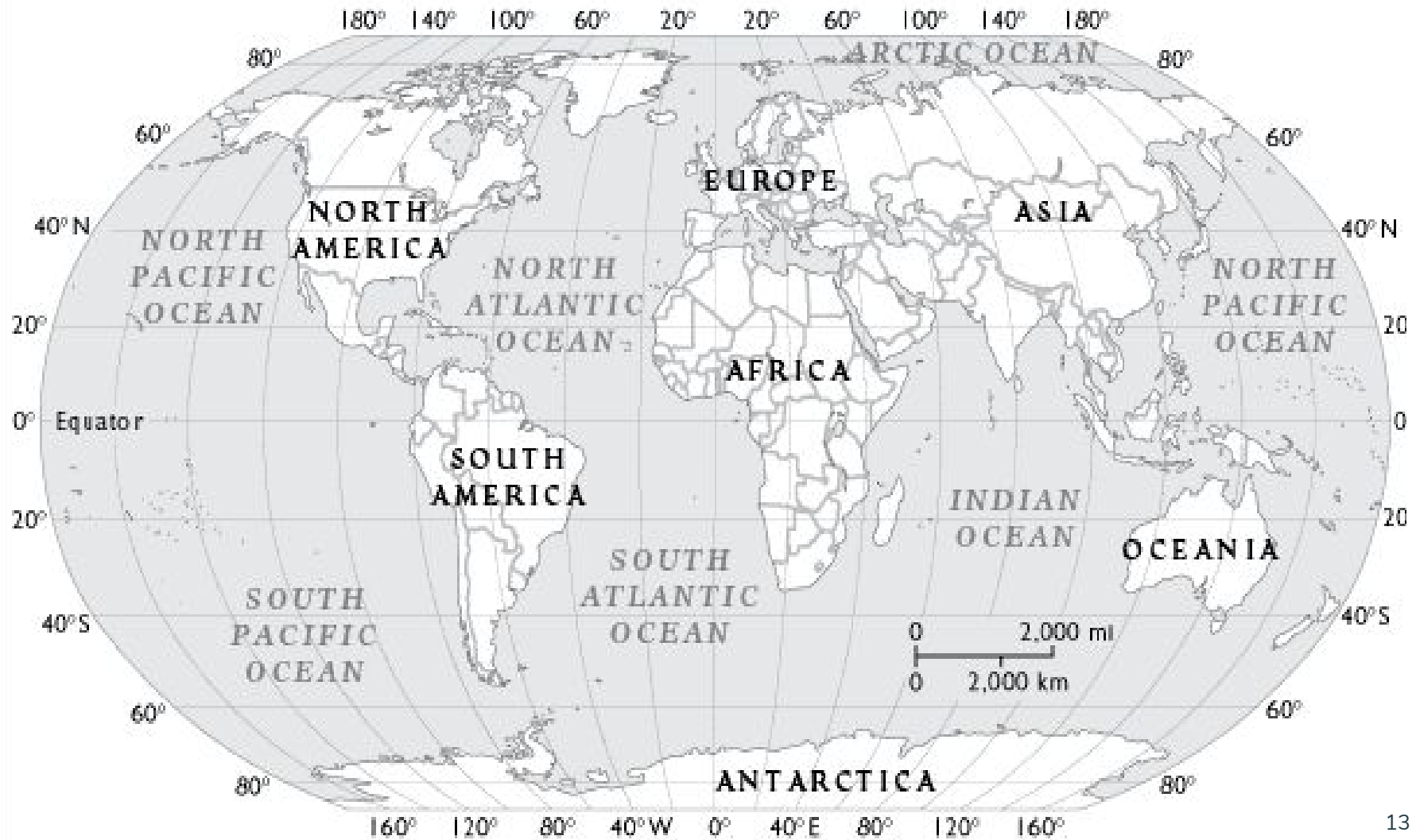
1. First, see if the location is north (N) or south (S) of the equator.
2. Next, count to see how many degrees (lines) the point is from the equator.
3. Then, determine whether it is east (E) or west (W) of the Prime Meridian.
4. Finally, count to see how many lines, or degrees, east or west of the Prime Meridian the point is.



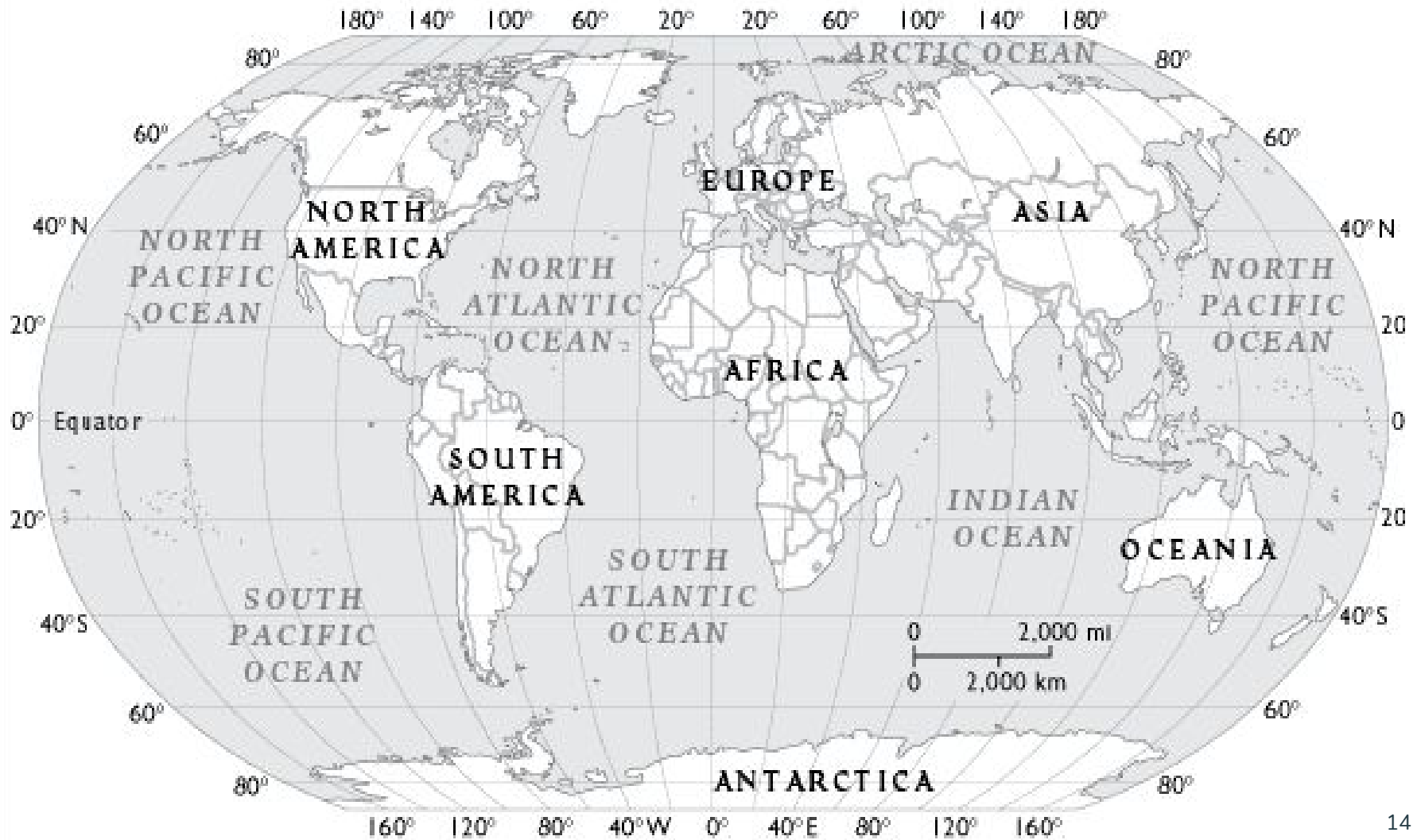
# Can we find 20° N?



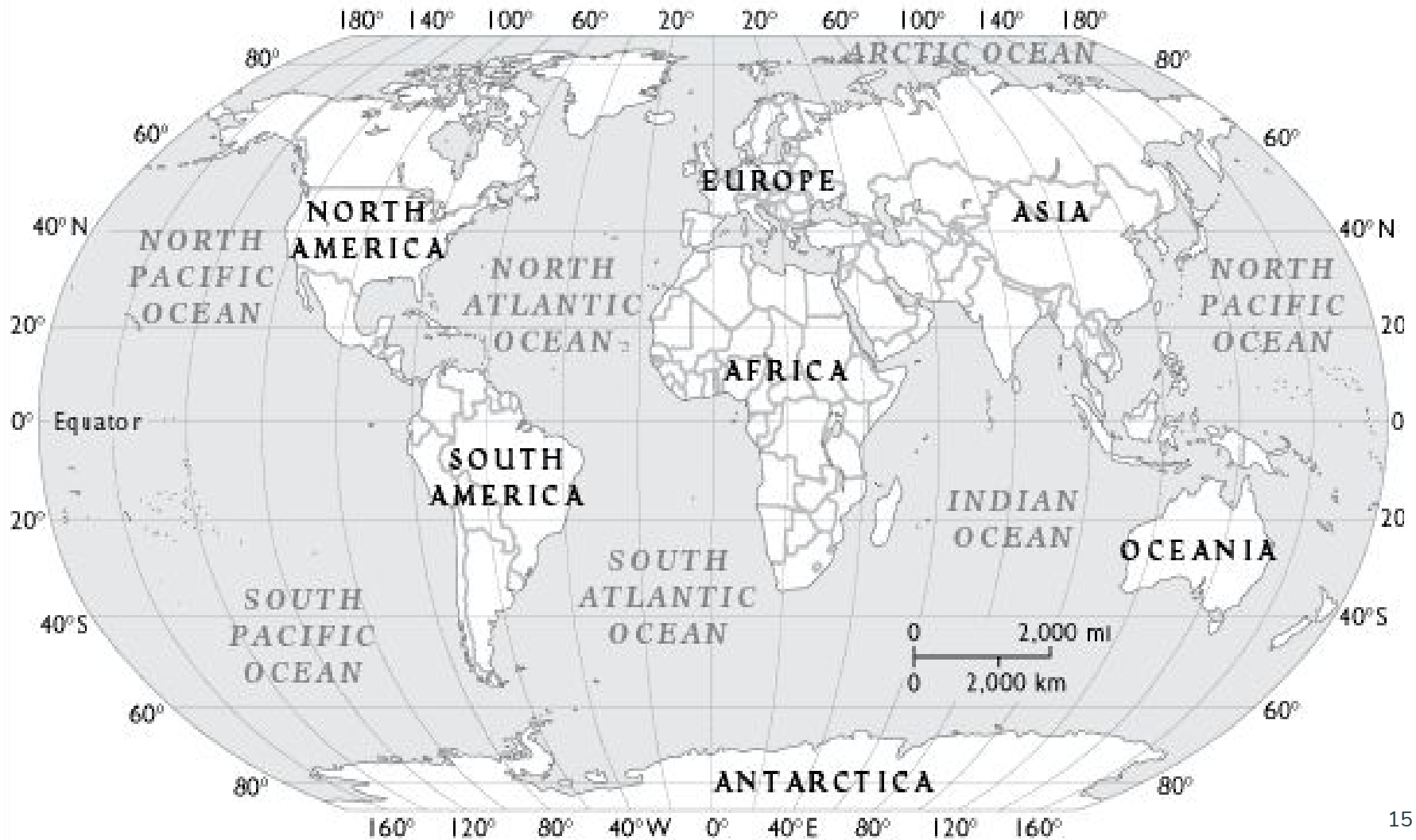
# Can we find 50° E?



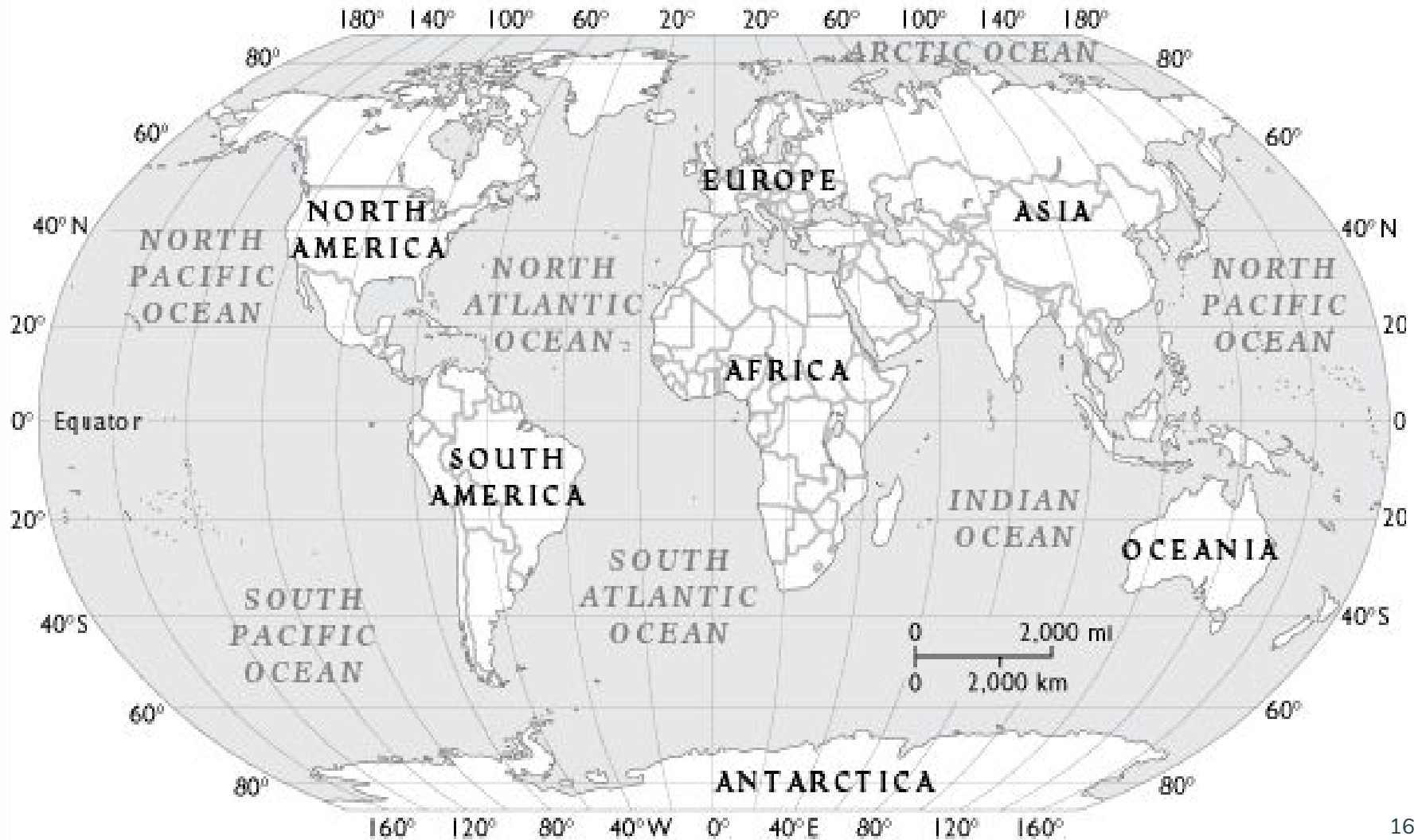
# Can we find 20° N, 50° E?



# Can we find $60^{\circ}\text{S}$ , $100^{\circ}\text{W}$ ?



# Can YOU find 35°N 80°W?

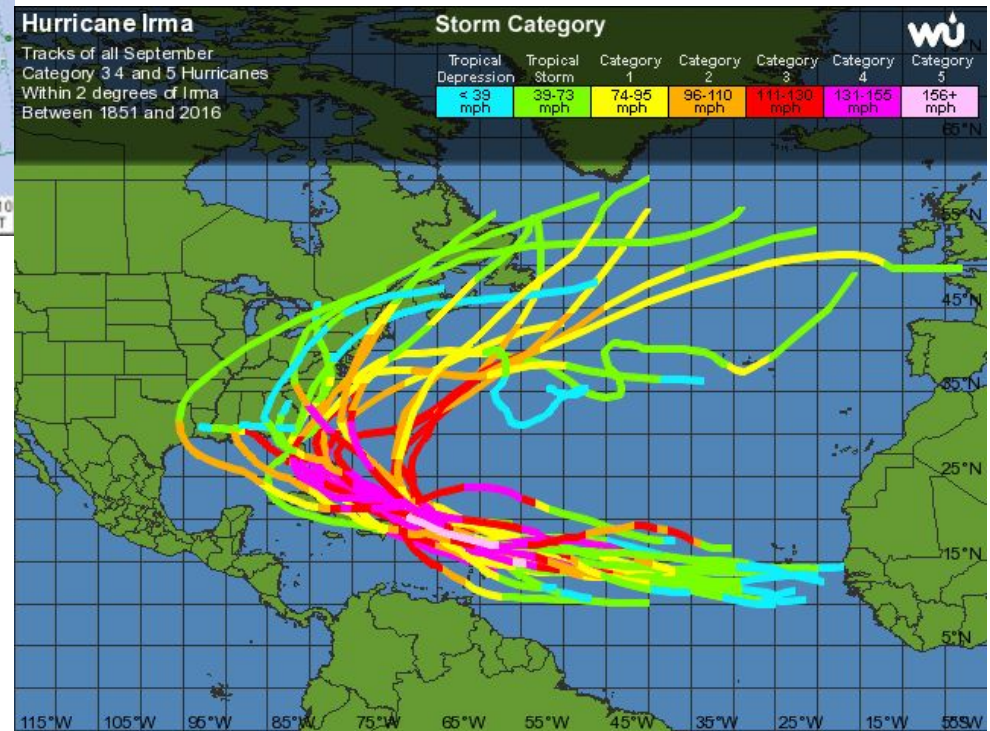
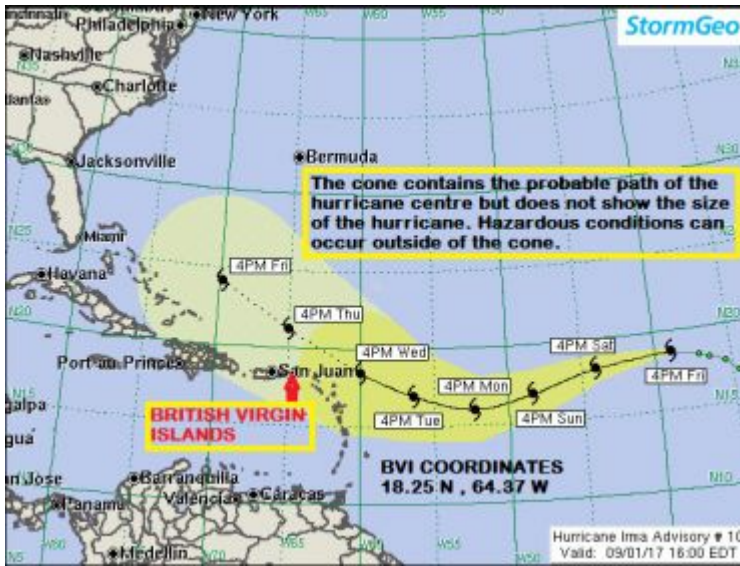




# Mapping Latitude and Longitude (Day 2)

September 7, 2017

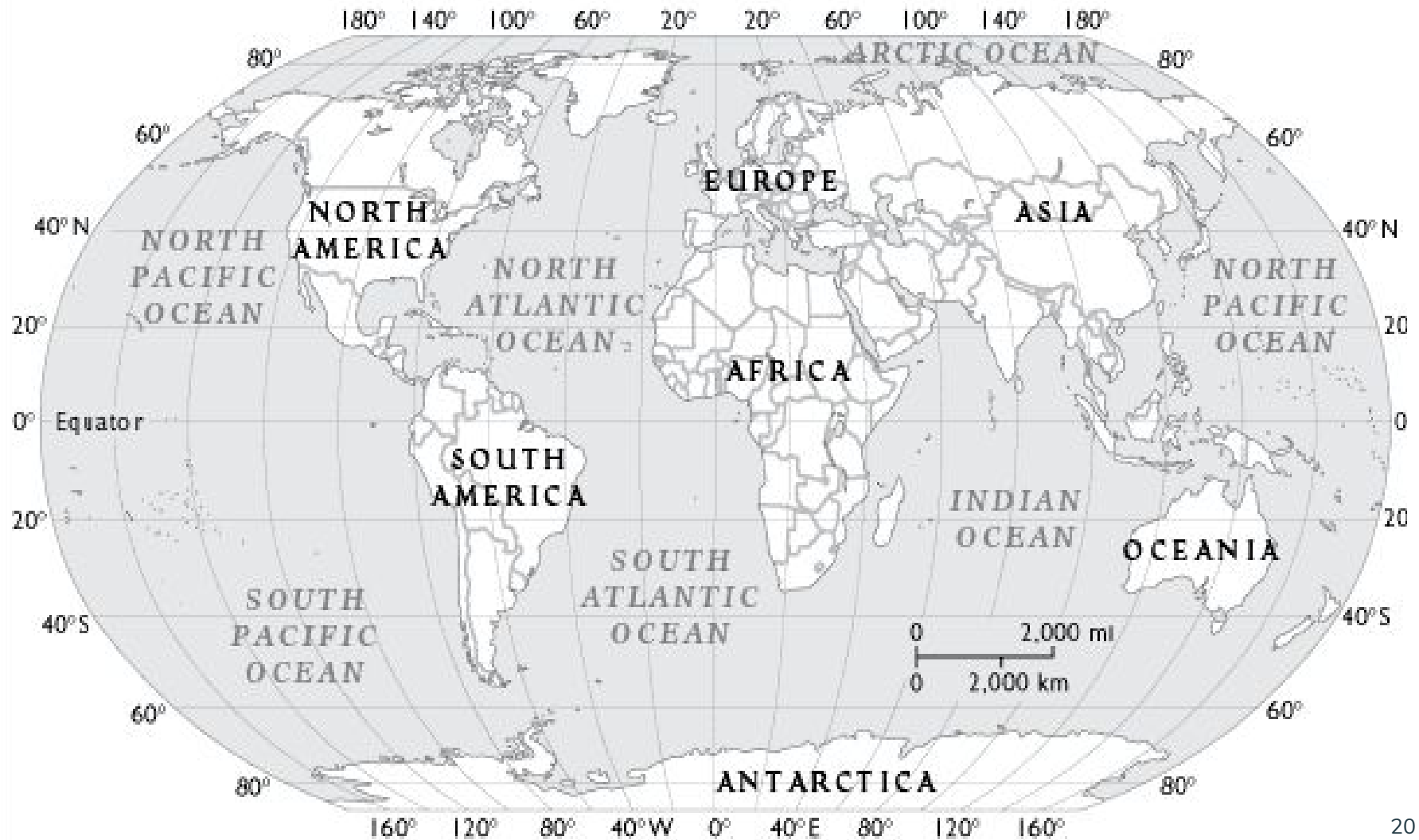
# Why Do We Care?



# What does the distance between the lines represent?

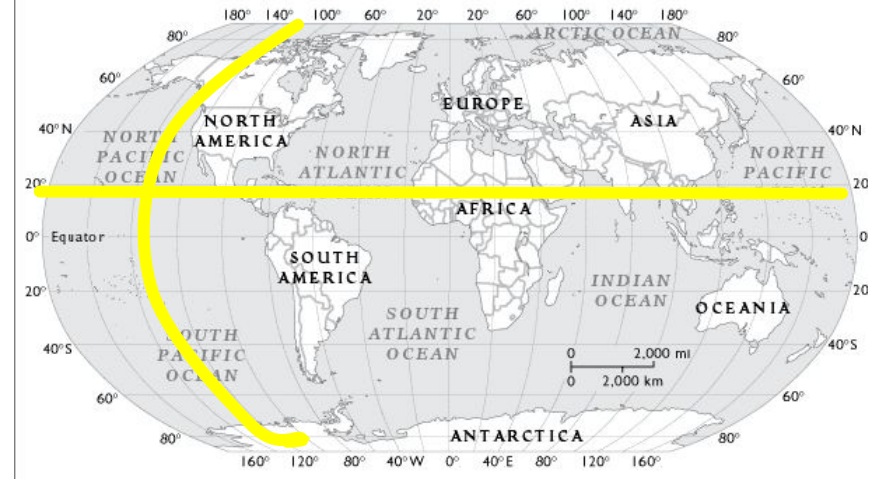
- Each degree of latitude or longitude = 69 miles (111 km)
  - That about the distance of a round trip drive to Rock Hill, SC
- Each degree of latitude and longitude is divided into **minutes** (') and **seconds** (").
  - There are 60 minutes in each degree.
  - For example, Hawthorne Academy is located at : 35° 20'11.4"N, 80°47'34.1"W

# Minutes and Seconds



# Absolute Location Investigation

- With your group complete the Absolute Location Investigation to figure out where the robber went with the maps!
- The **first letter** of each place you find will spell out the city where the robber took the maps!
  - 1st Place: 4 bonus pts
  - 2nd Place: 3 bonus pts
  - .....

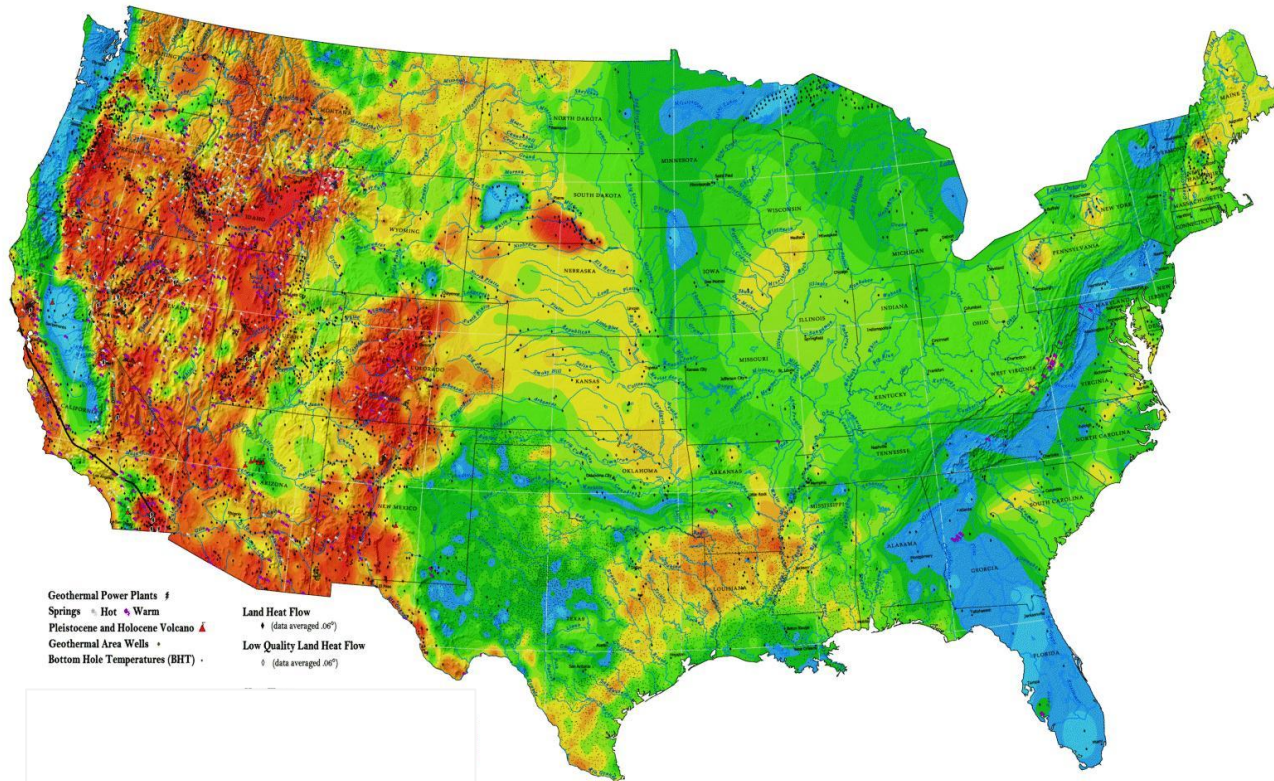


# Mapping Contour Lines

September 8, 2017

# Do Now

Study the map below. What do you think the color codes represent? In other words, what is the difference between a place that is colored red vs a place that is colored blue or green??

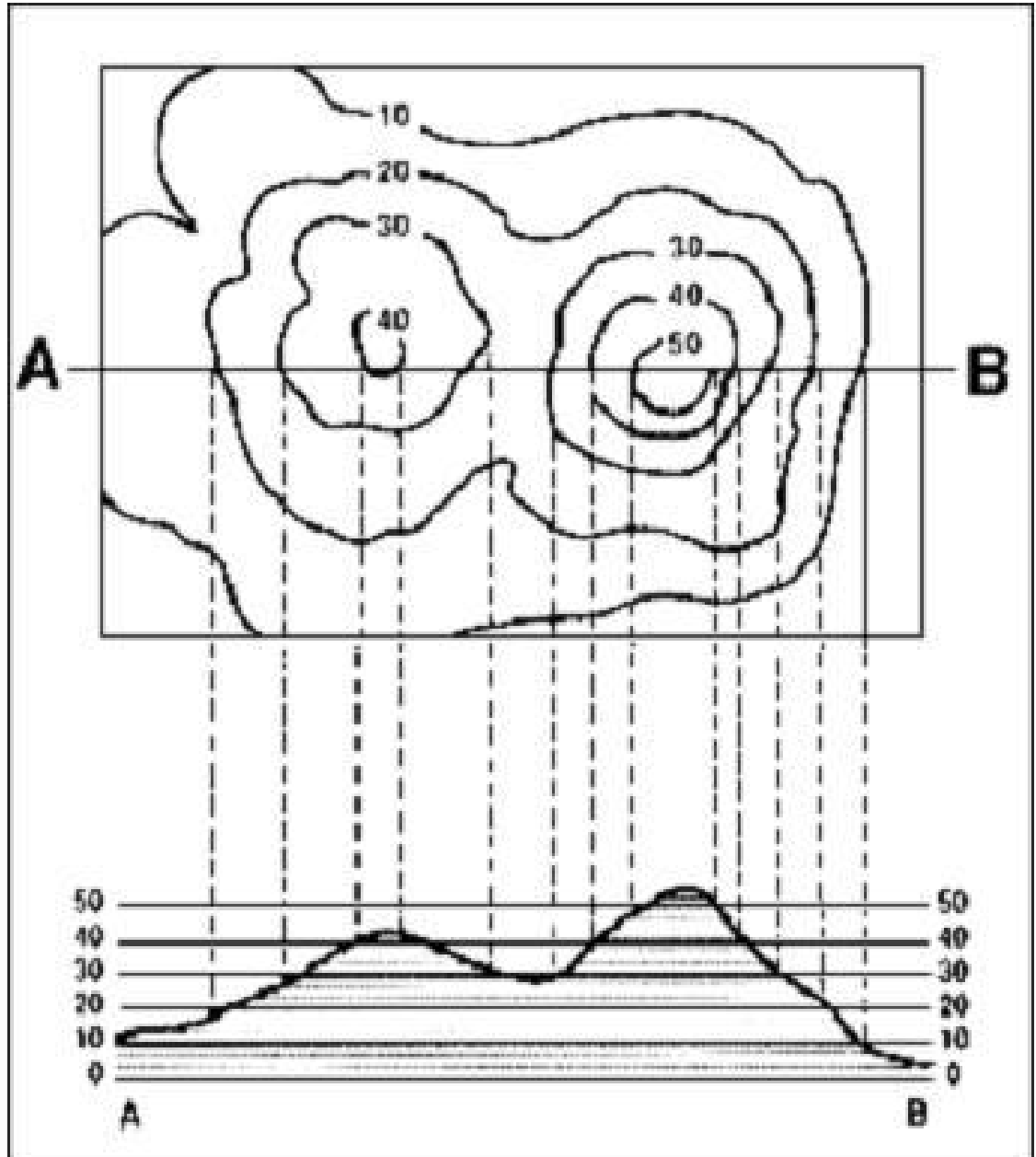


# OBJECTIVE

Students will interpret and understand topographic maps.

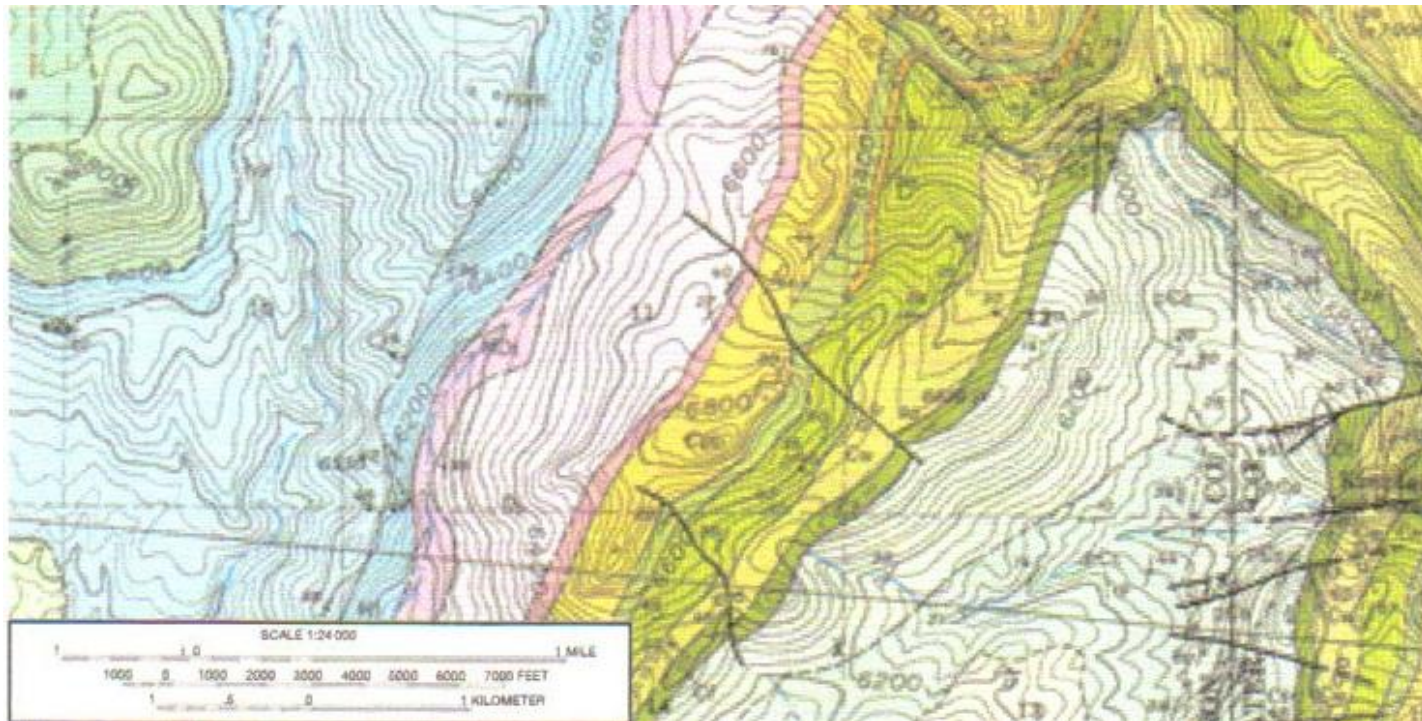


What observations can you make about this picture?



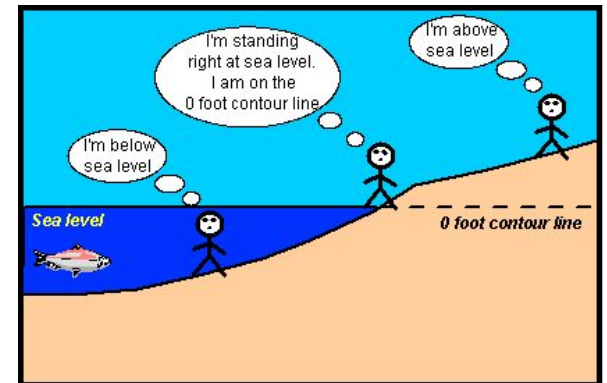
# TOPOGRAPHIC MAPS

A 2D way of showing 3D image of Earth's elevations



# ELEVATION

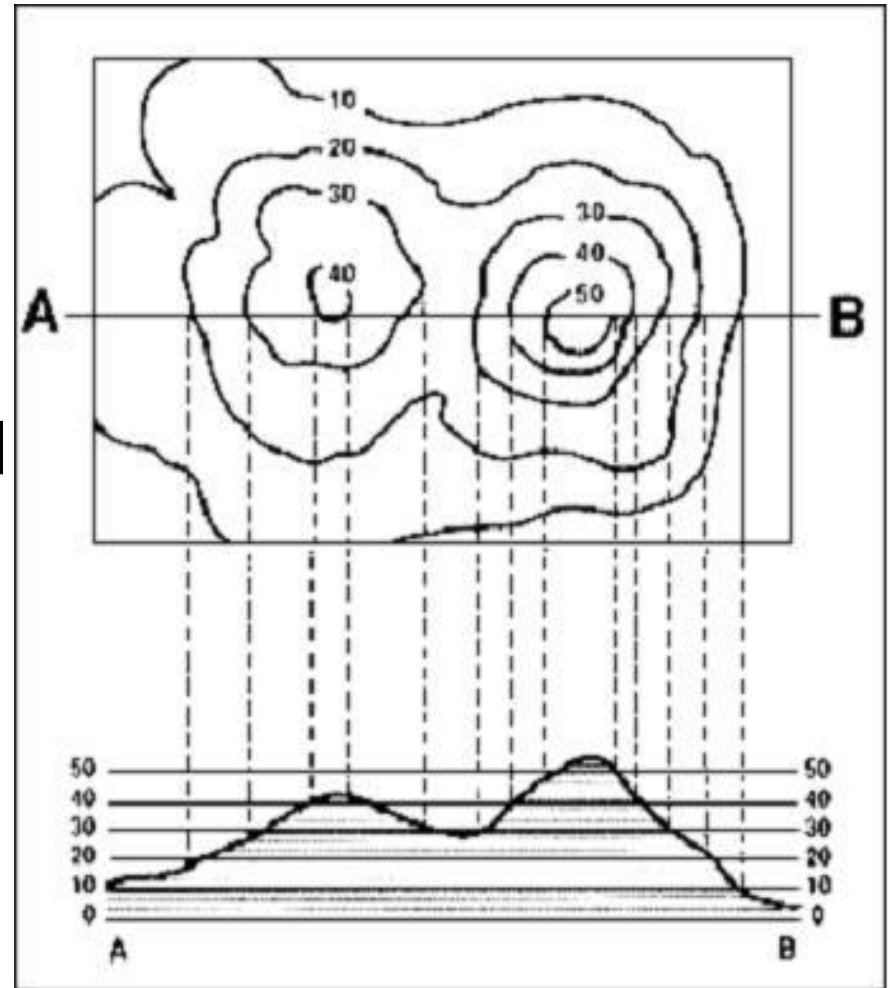
Elevation is how high something is above sea level.



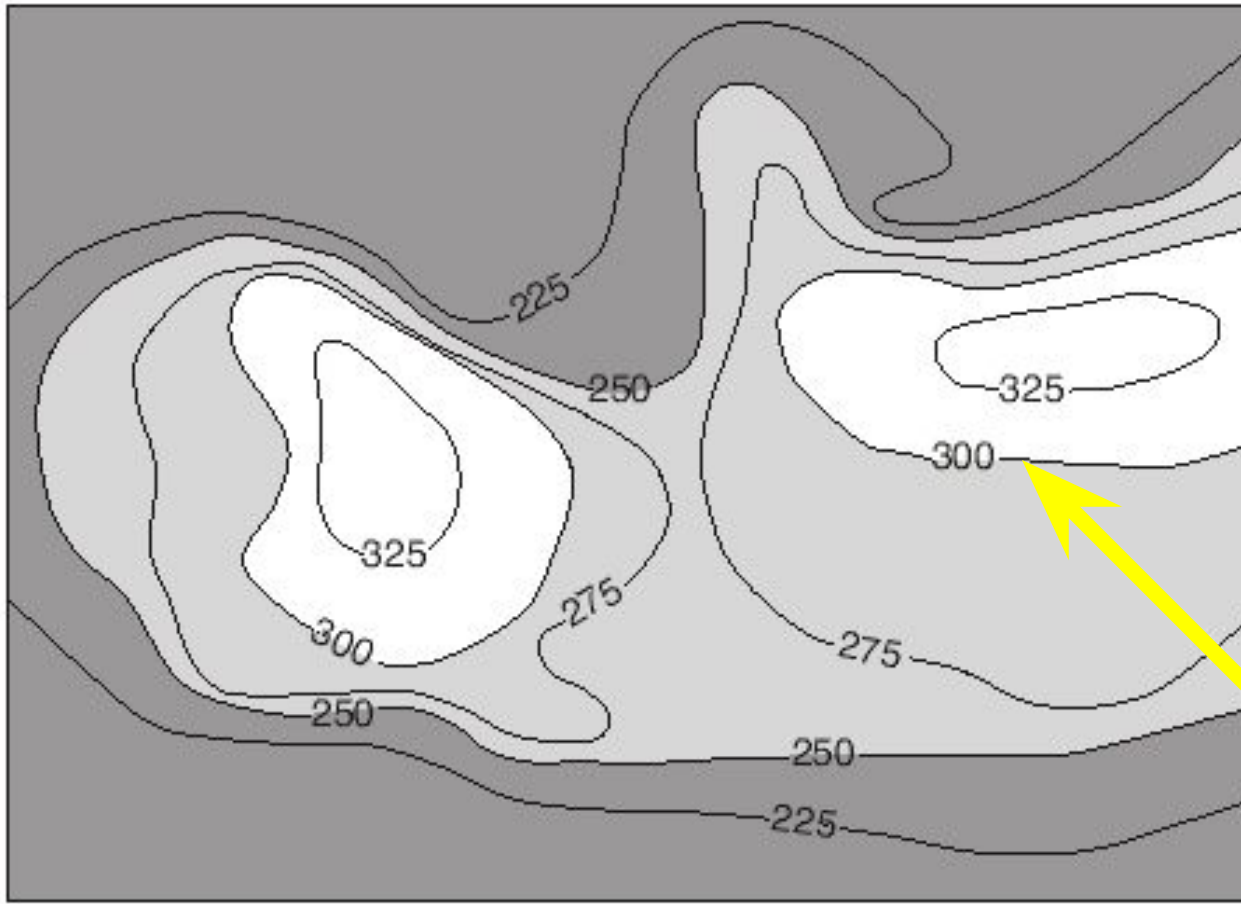
# CONTOUR LINES

**Contour Line:** a line drawn on a map that connects points of equal elevation

- If you physically followed a contour line, elevation would remain constant



# CONTOUR LINES

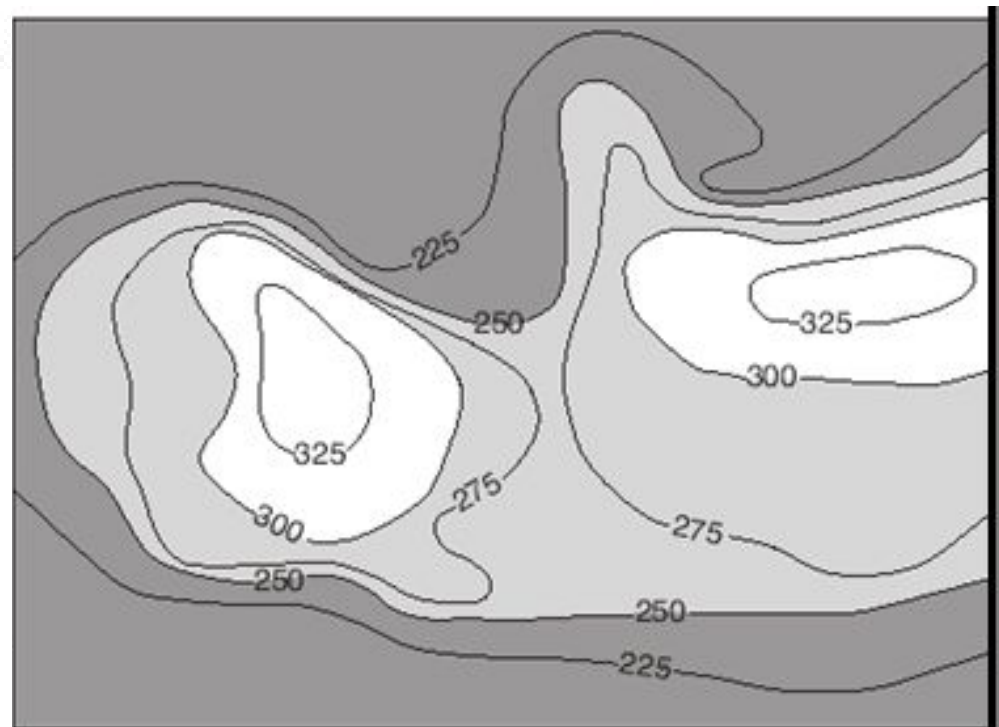


Contour  
Line

## ACTIVITY #1

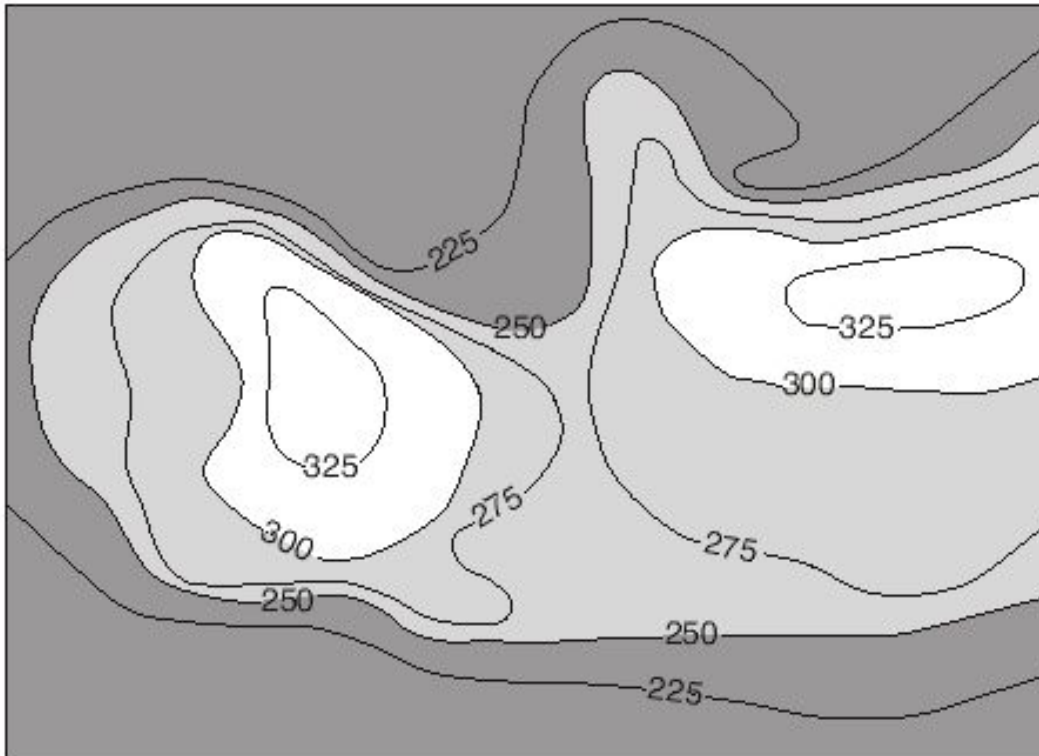
On the map to the right:

- 1) Draw stars on the contour line that shows an elevation of 225 ft.
- 2) Draw triangles on the line that shows an elevation of 275 feet

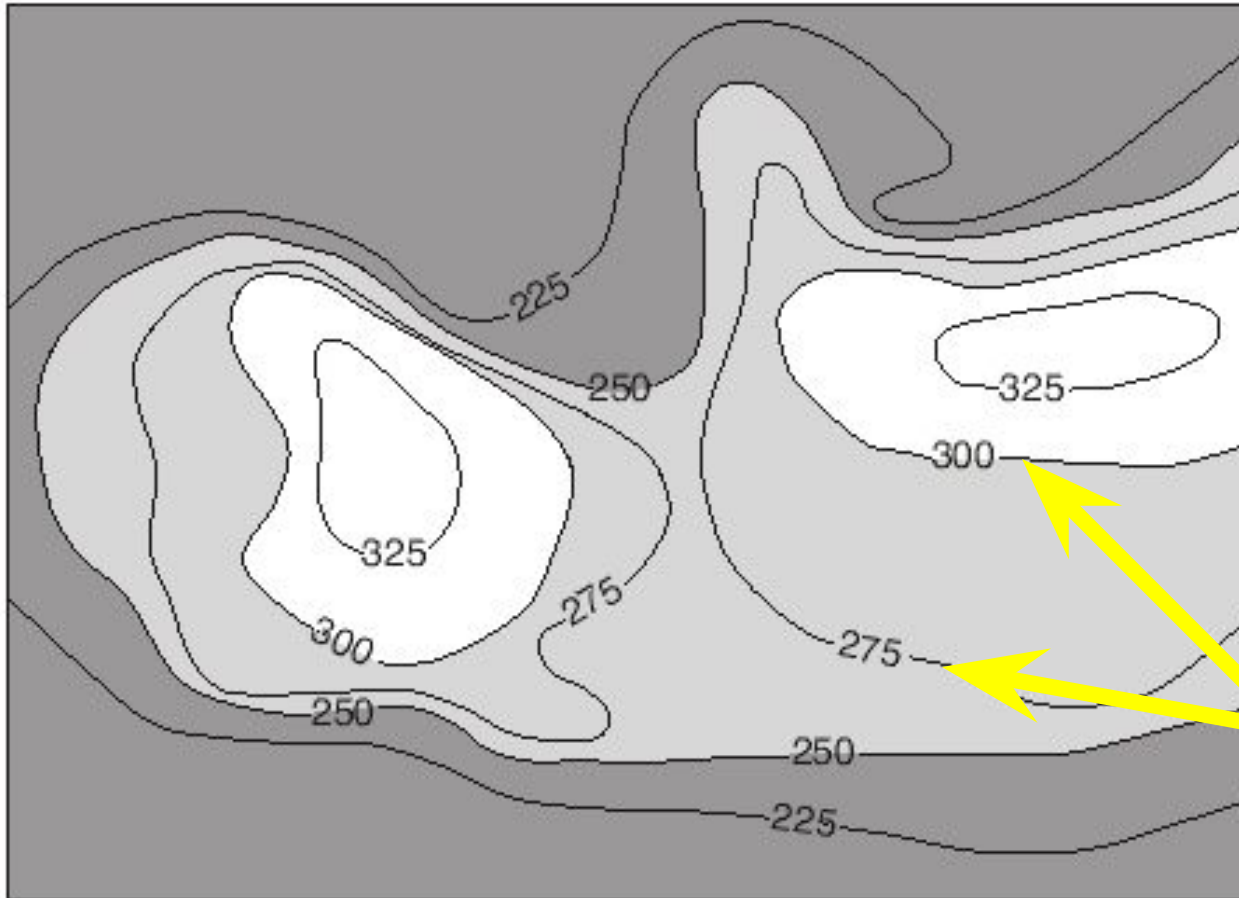


# CONTOUR INTERVAL

- **Contour Interval:** how much the elevation increases
- To calculate: subtract the lower elevation from the higher elevation.



# CONTOUR INTERVAL

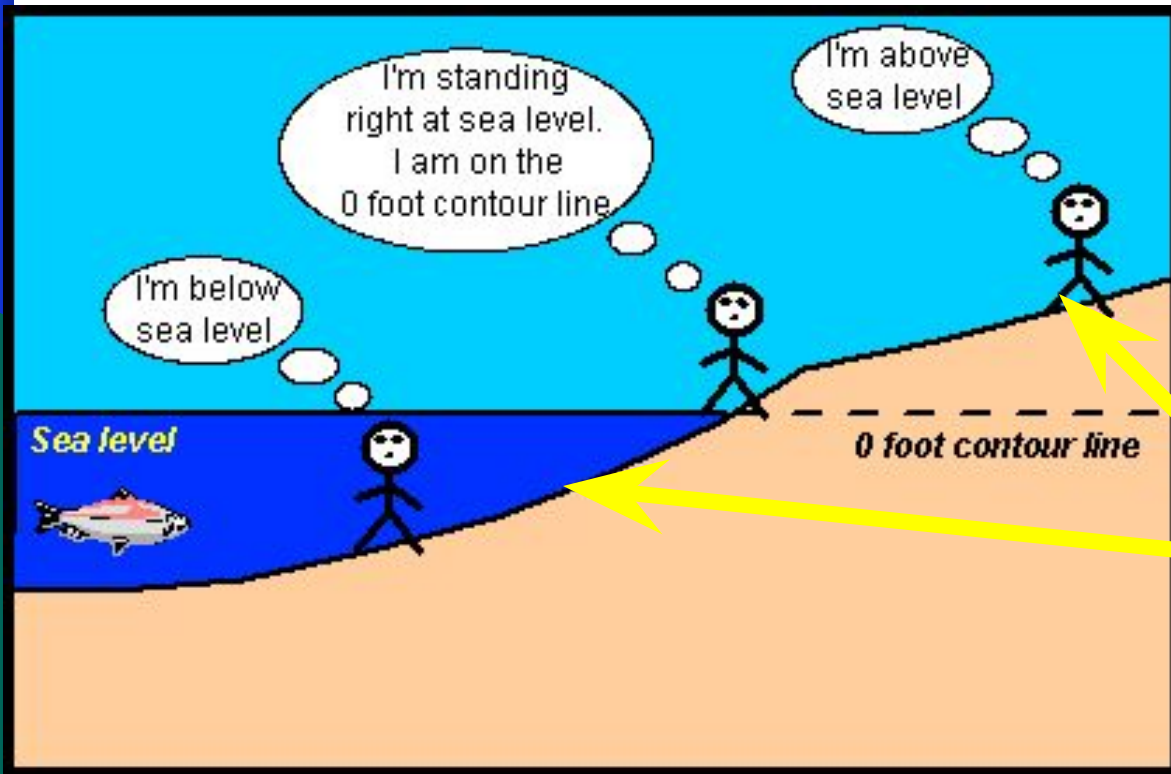


What is the  
Contour  
Interval?  
(300-275)



# RELIEF

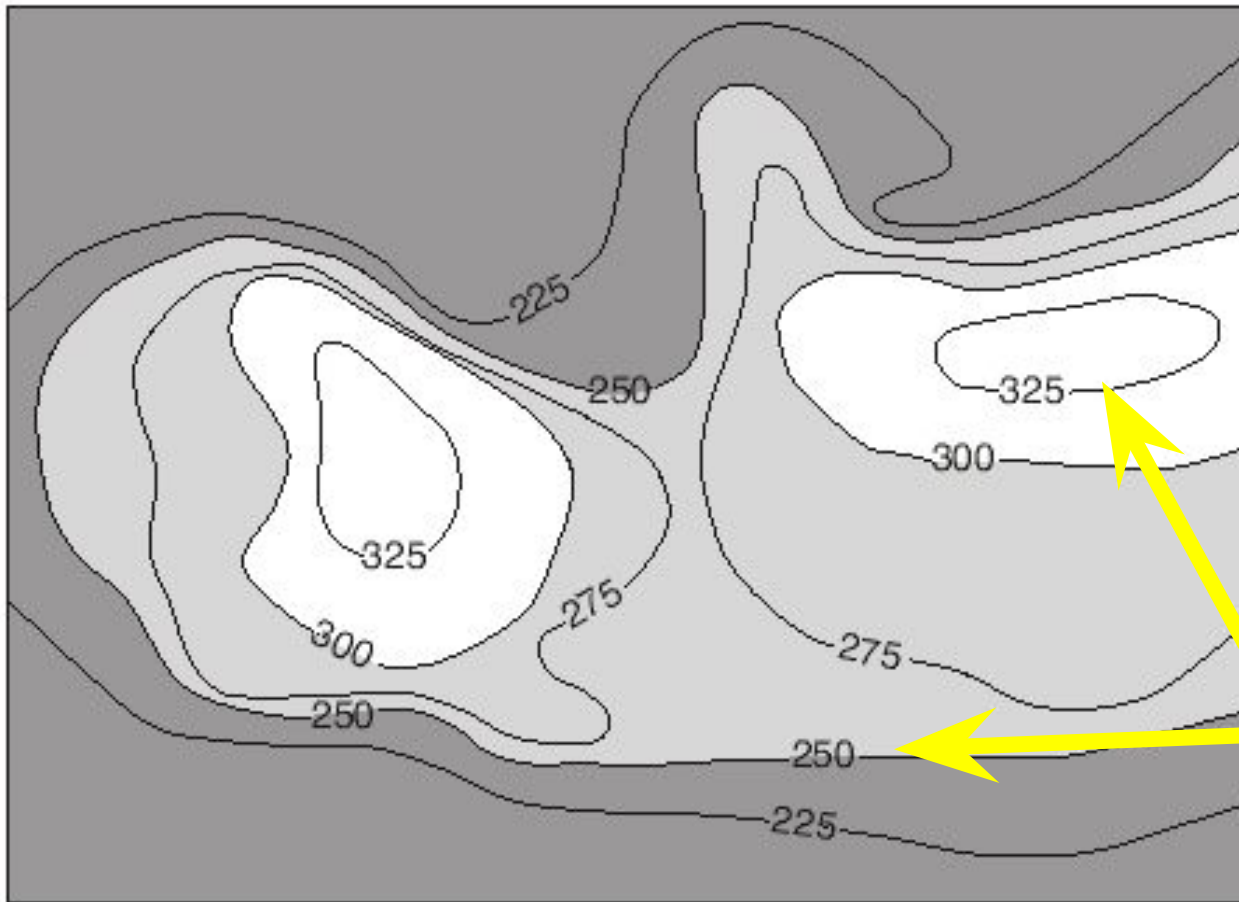
**Relief:** variations (differences) in elevation



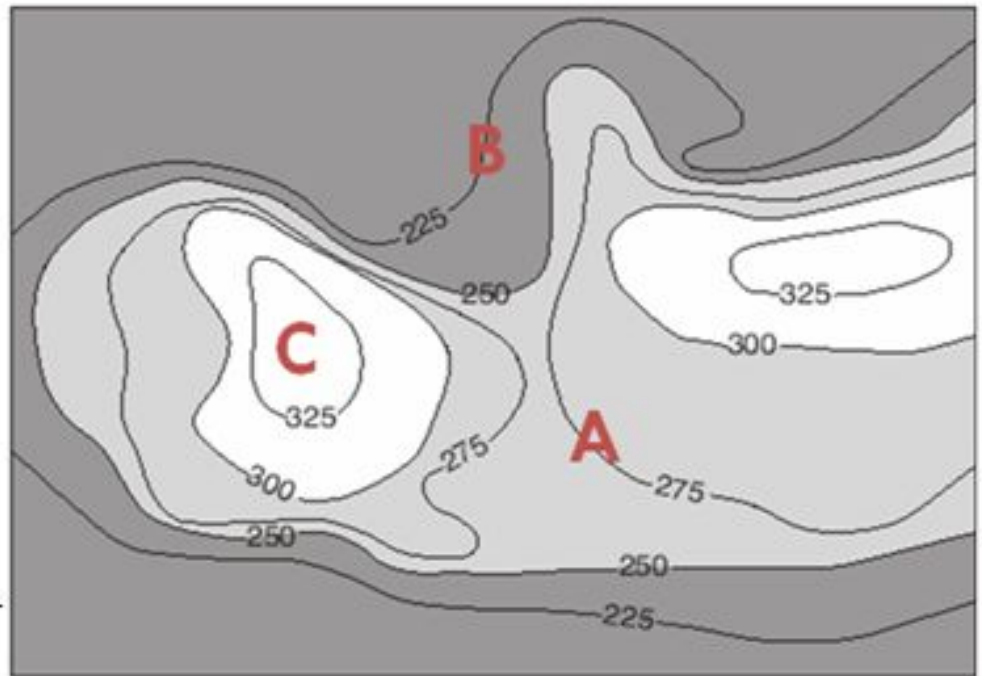
DIFFERENCE  
=  
RELIEF

# RELIEF

To calculate Relief: higher elevation – lower elevation



What is the relief between 325-250?



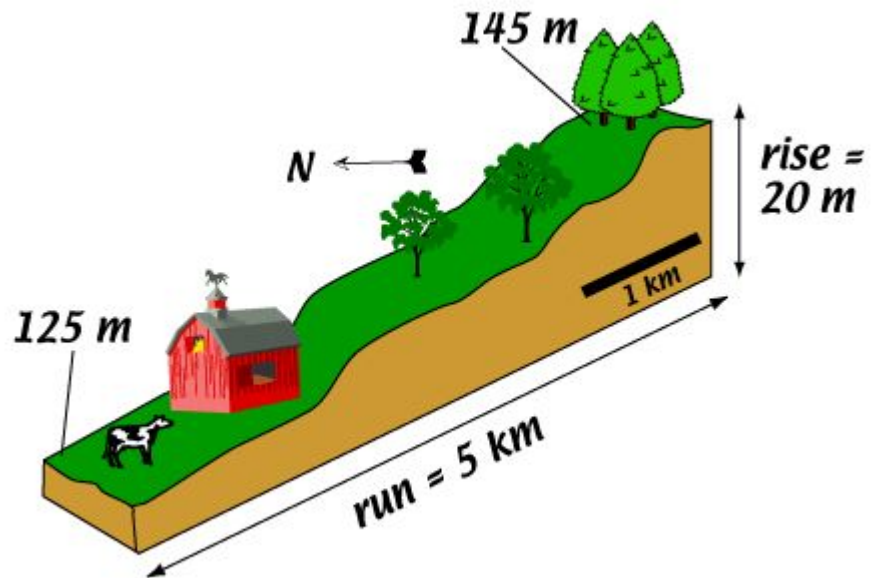
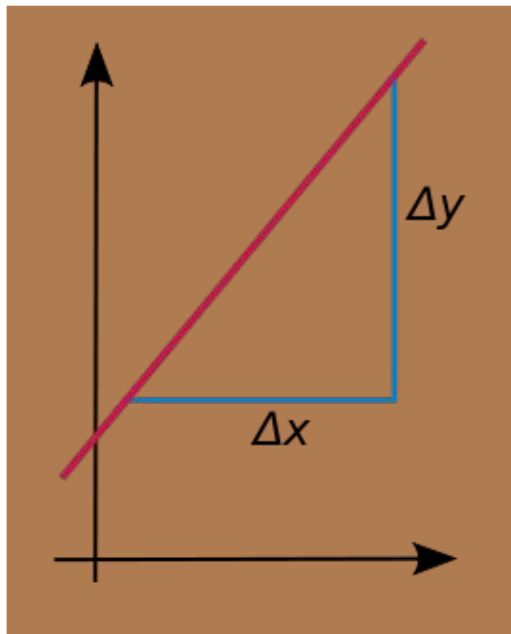
## ACTIVITY #2

On the map above:

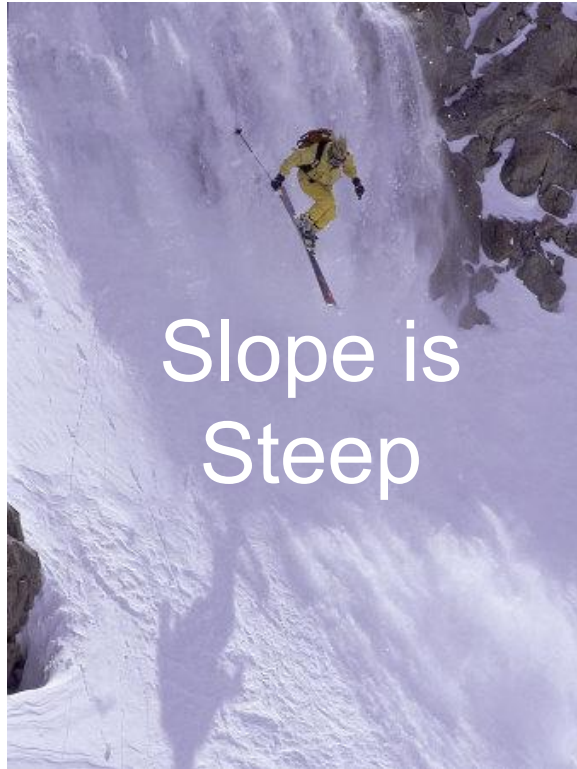
- 1) What is the elevation at point C? \_\_\_\_\_
- 2) What is the elevation at point A? \_\_\_\_\_
- 3) What is the elevation at point B? \_\_\_\_\_
- 4) What is the relief between points A and C? \_\_\_\_\_
- 5) What is the relief between points A and B? \_\_\_\_\_

# SLOPE

**Slope:** the incline or steepness of a hill.



Contour lines are closer together



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Contour lines are farther apart



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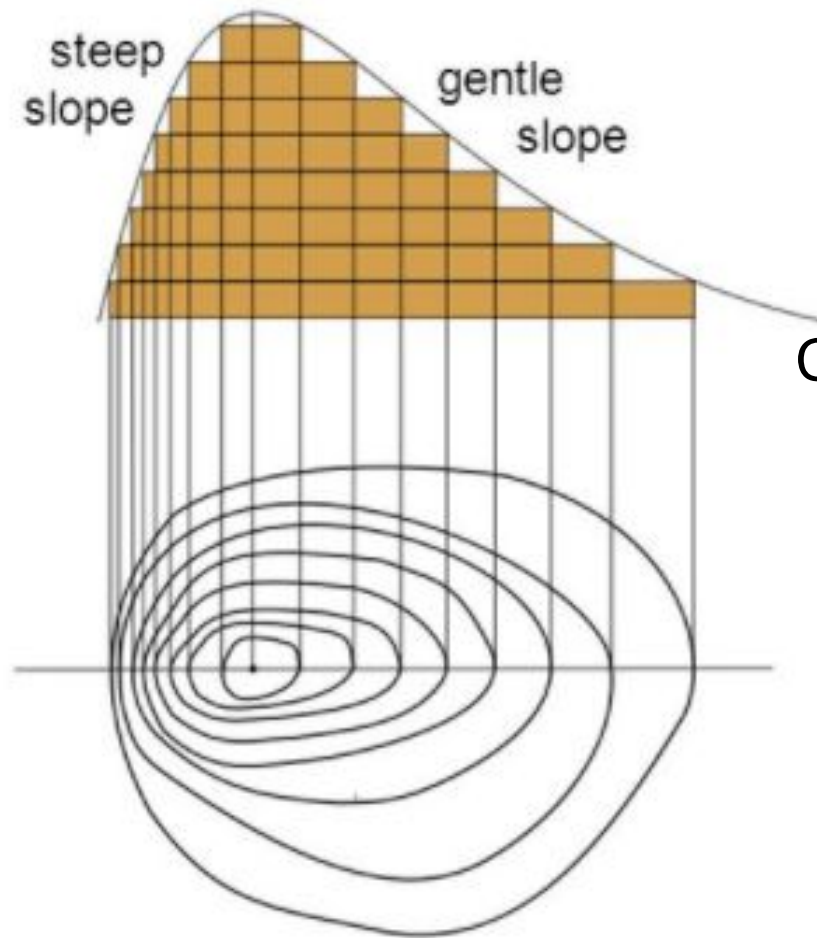
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# SLOPE

**Slope:** the incline or steepness of a hill.

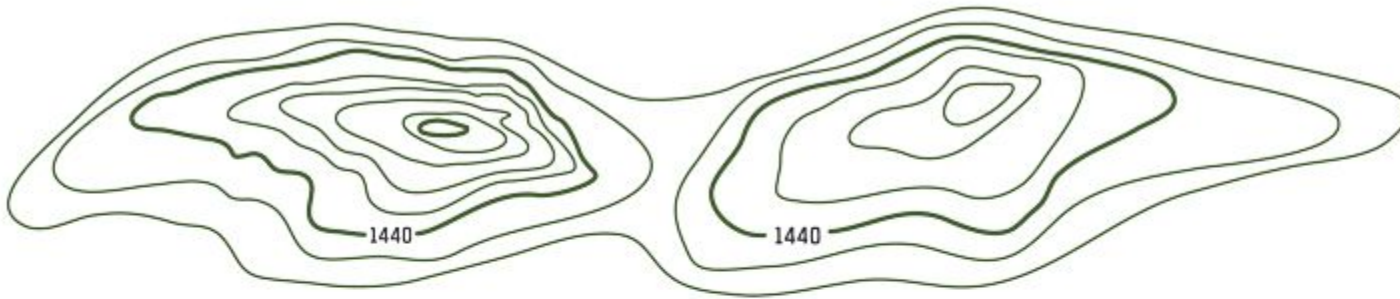


Contour lines are  
closer together

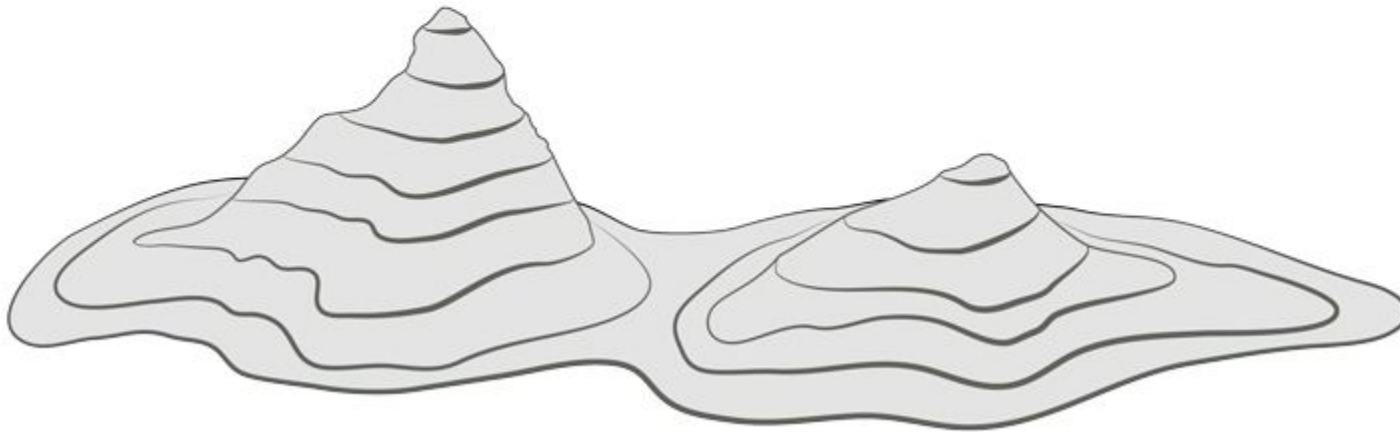
Contour lines are  
farther apart

# SLOPE

**Slope:** the incline or steepness of a hill.



WHAT YOU SEE  
ON YOUR MAP

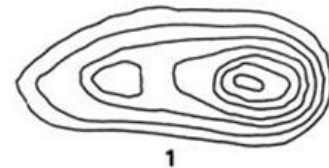


3-D VIEW  
OF LANDMARK

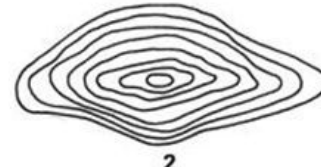
# Exit Ticket

1. Match the Topographic Map (1,2,3...) with the correct depiction (A, B, C...)

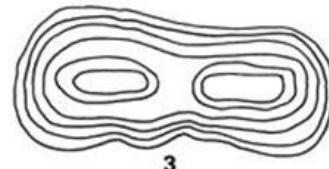
2. Which would you rather hike? Why?



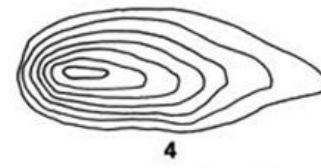
1



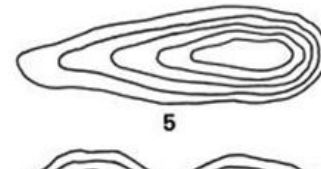
2



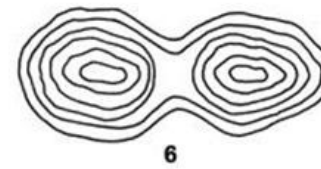
3



4



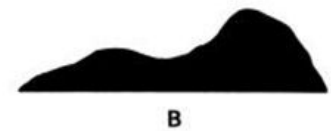
5



6



A



B



C



D



E



F