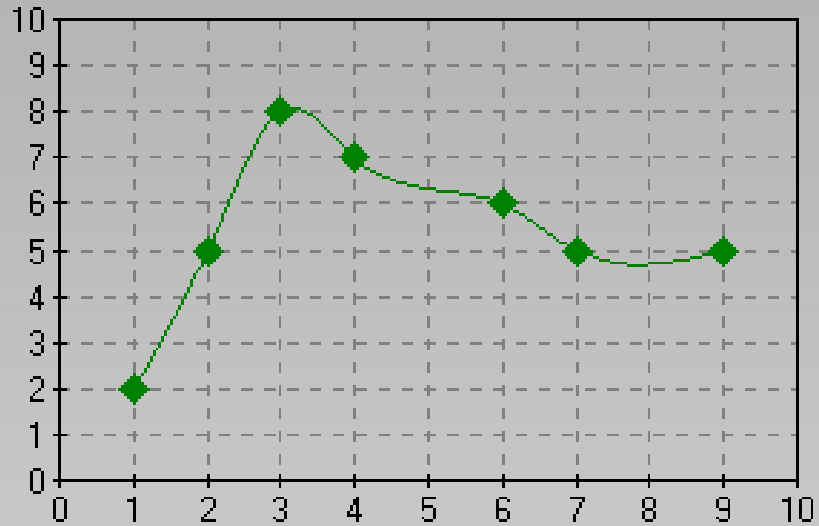




# Understanding Longitude and Latitude

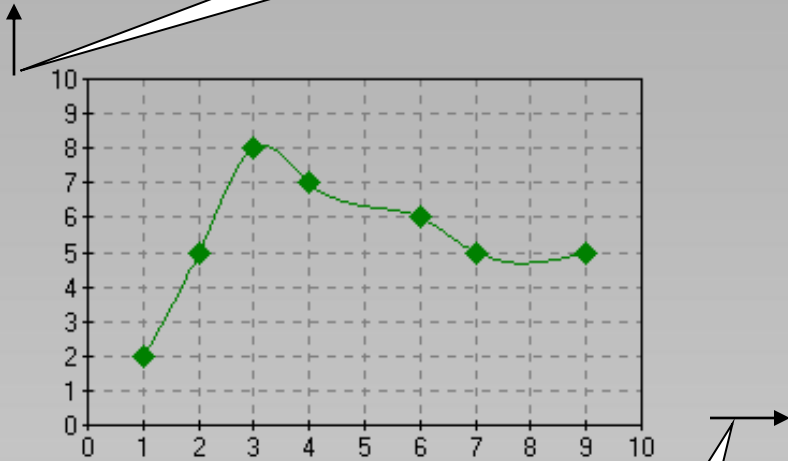
# Typical Graph



- This is an example of a typical graph we are all familiar with.
- The graph is made up of different “points” with lines that connect the points.

# Typical Graph

Y axis

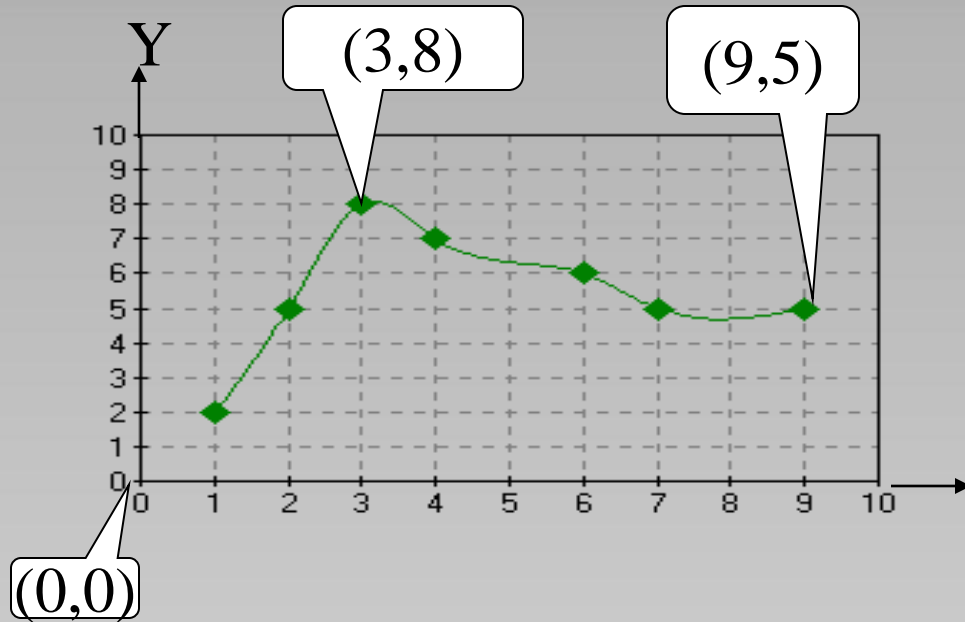


X axis

- Each point has two values:
- The “X” value that runs along the horizontal “X” axis
- The “Y” value that runs along the vertical “Y” axis



# Typical Graph

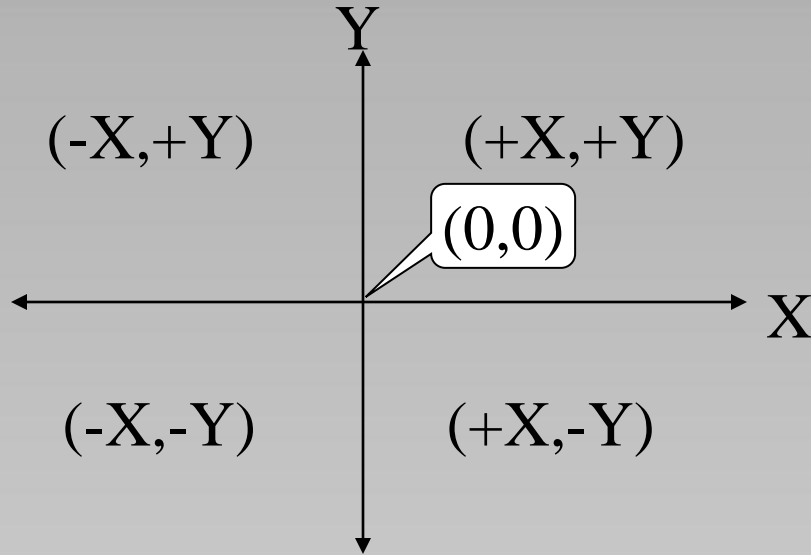


- X value is always stated first
- Followed by the Y value
- The “origin” is the point where the 2 axes intersect with a value of  $(0,0)$

X



# Typical Graph



- A point can also have negative (-) values
- Negative X values are to the left of the origin  $(0,0)$
- Negative Y values are below the origin





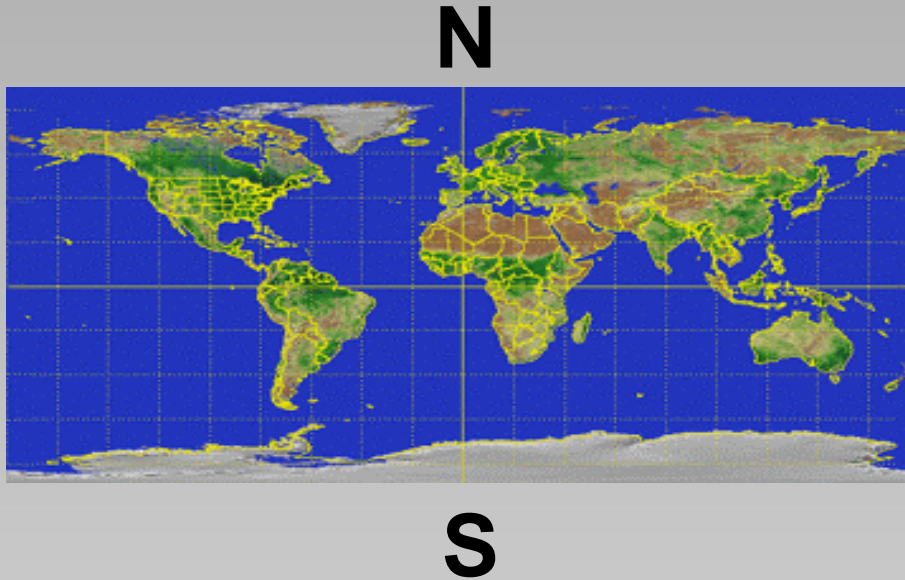
# East West, North South on The Earth



- Let the X axis be the Equator.
- Let the Y axis be the Prime Meridian that runs through Greenwich outside of London.
- Lat/Long are the 2 grid points by which you can locate any point on earth.



# East West, North South on The Earth



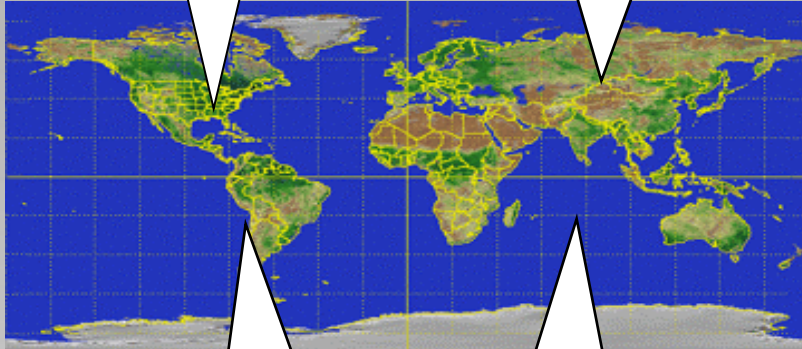
- Let each of the four quarters then be designated by North or South and East or West.



# East West, North South on The Earth

(N, W)

(N, E)



(S, W)

(S, E)

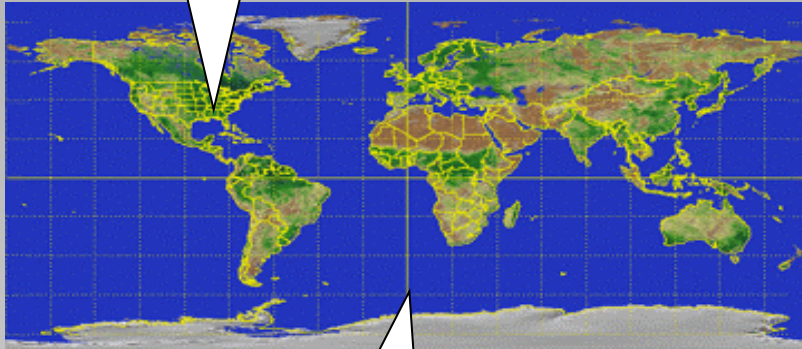
- The N tells us we're north of the Equator. The S tells us we're south of the Equator.
- The E tells us that we're east of the Prime Meridian. The W tells us that we're west of the Prime Meridian.





# East West, North South on The Earth

(N, W)

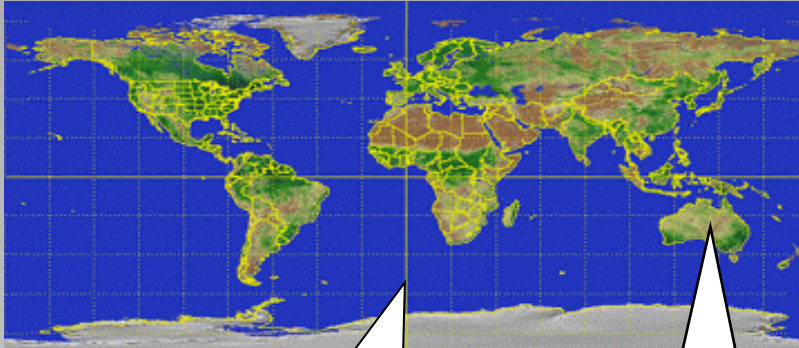


Prime Meridian

- That means all points in North America will have a North latitude and a West longitude because it is North of the Equator and West of the Prime Meridian.



# East West, North South on The Earth



Prime Meridian

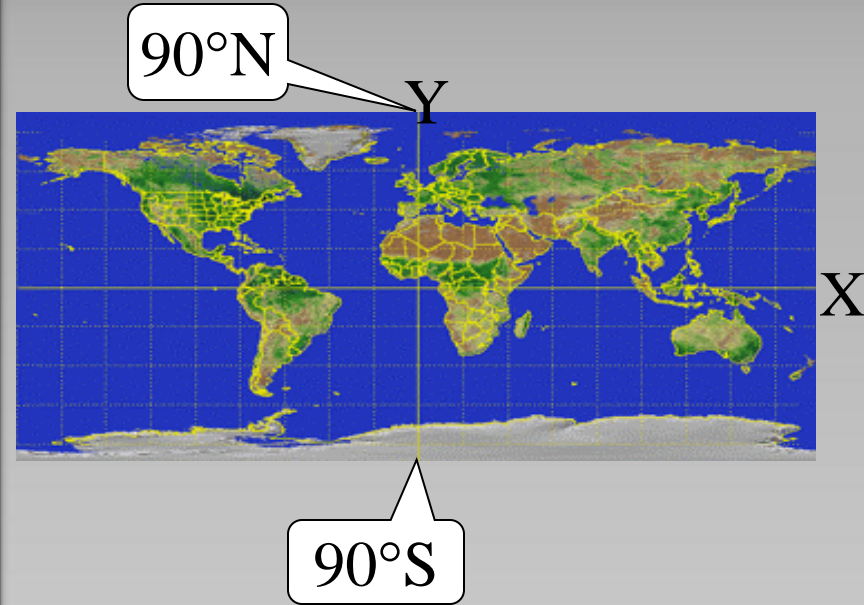
?

- What would be the latitude and longitude directions in Australia?

- If you said South and East , you're right!



# What is Latitude?

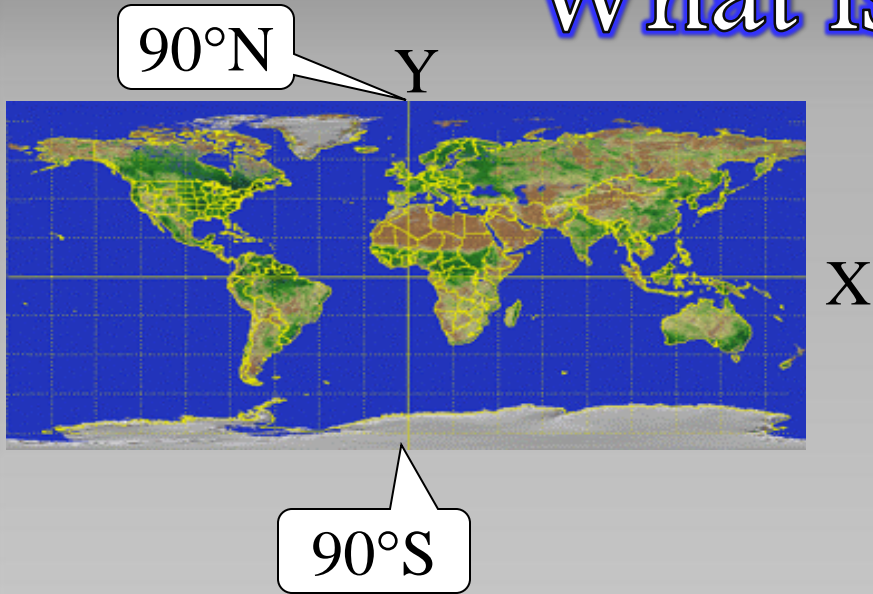


- Latitude is the distance from the equator along the Y axis.
- All points along the equator have a value of 0 degrees latitude.
- North pole = 90°N
- South pole = 90°S
- Values are expressed in terms of degrees.





# What is Latitude?



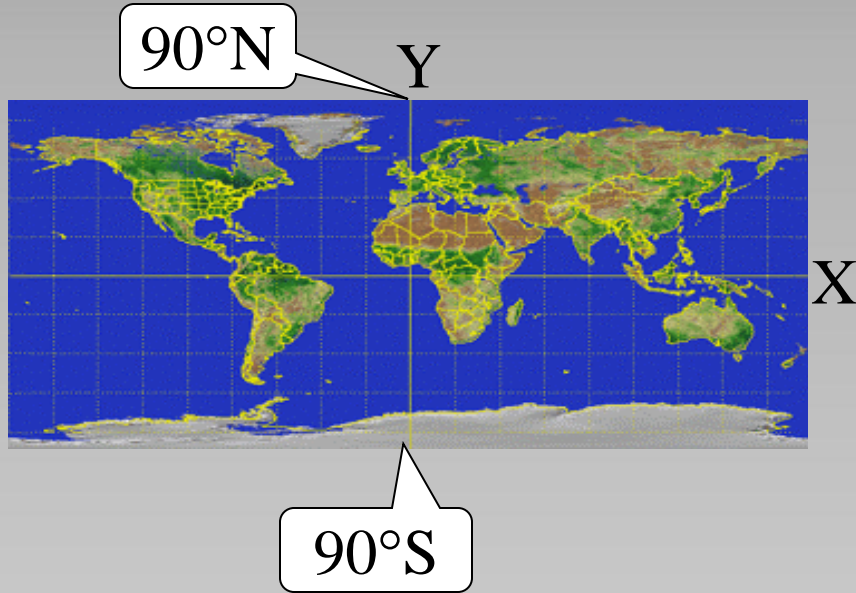
- Each degree of latitude is divided into 60 minutes.
- Each minute is divided into 60 seconds.

This is also true of longitude.





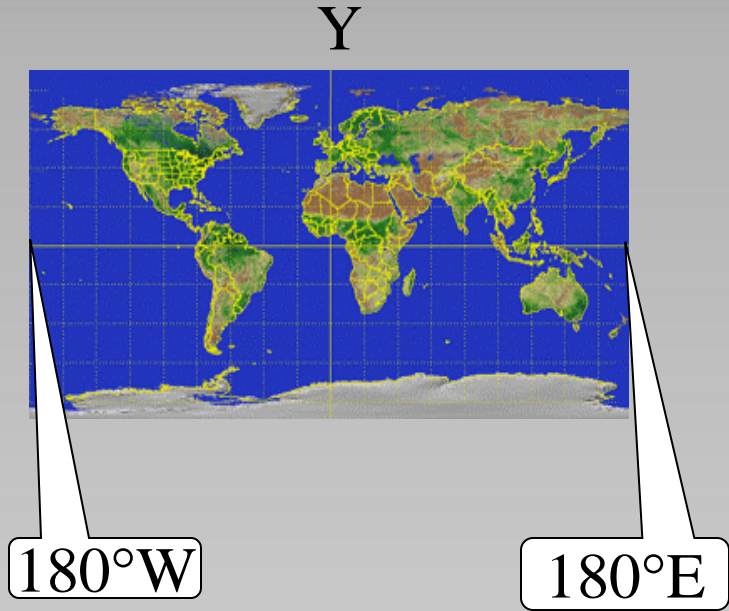
# What is Latitude?



- For Example:
- 27 °N
- This is close to the latitude where you live.



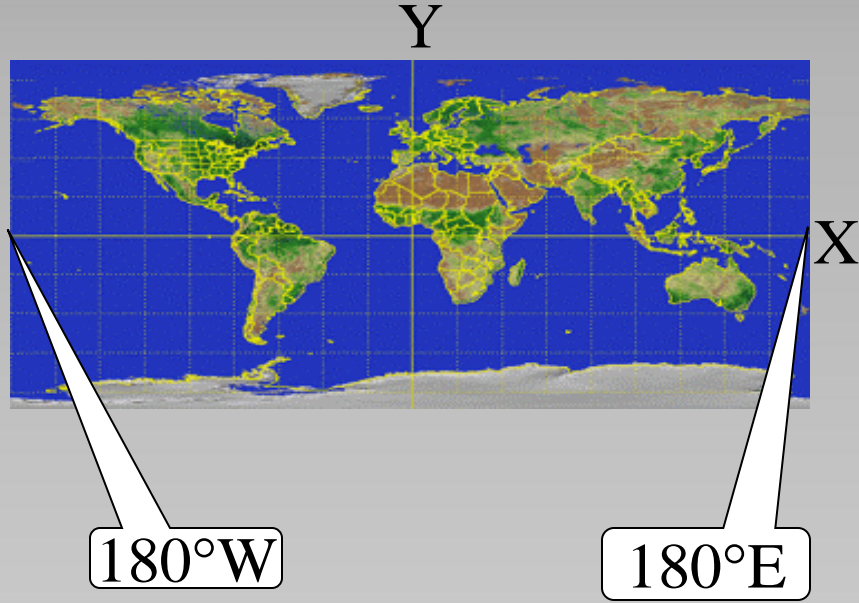
# What is Longitude?



- Longitude is the distance from the prime meridian along the X axis.
- All points along the prime meridian have a value of 0 degrees longitude.
- The earth is divided into two parts, or hemispheres, of east and west longitude.



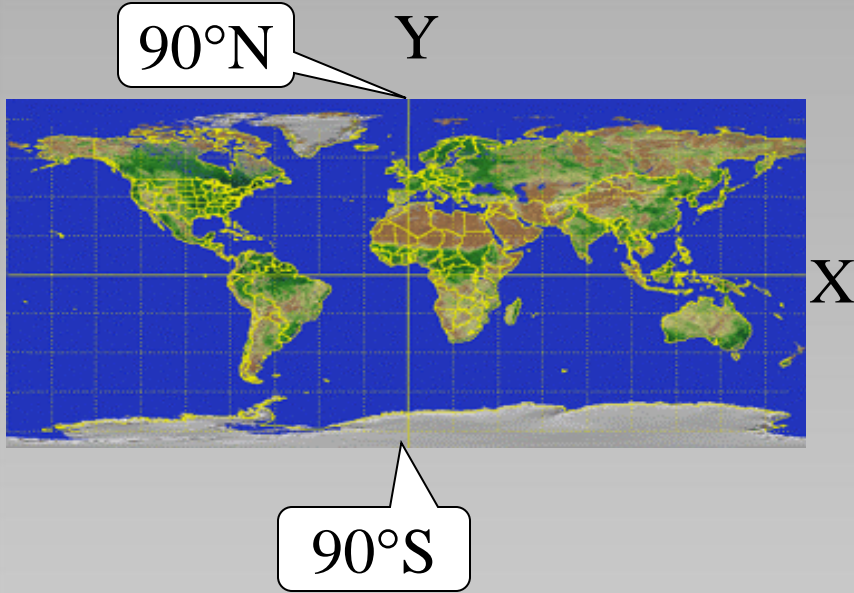
# What is Longitude?



- The earth is divided into 360 equal slices (meridians)
- 180 west and 180 east of the prime meridian



# What is Longitude?

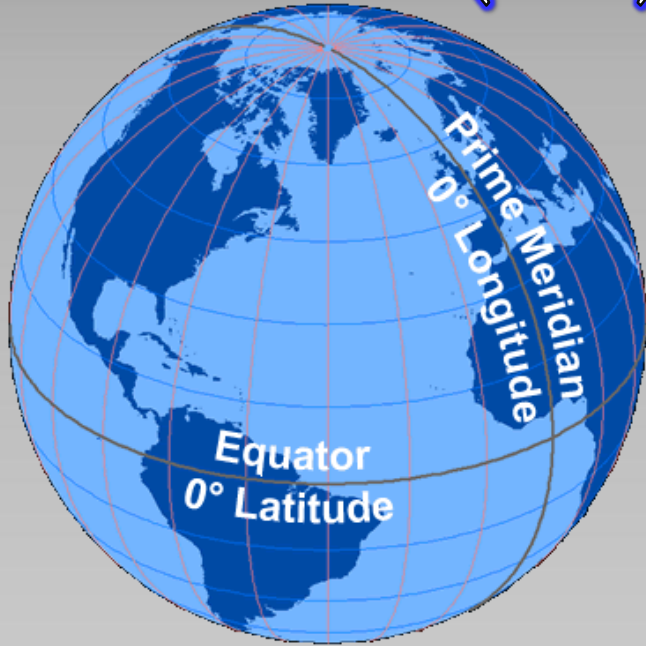


- Our longitude might be.
- $-97^{\circ}\text{W}$





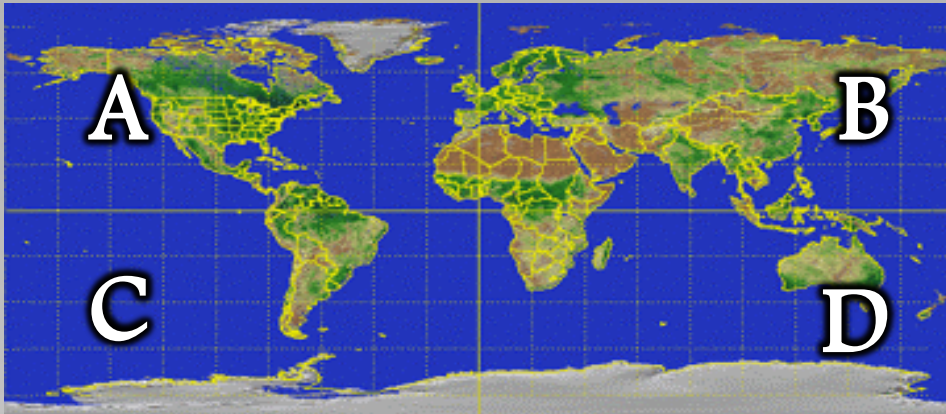
# So Where is (0,0)?



- The origin point (0,0) is where the equator intersects the prime meridian.
- (0,0) is off the western coast of Africa in the Atlantic Ocean.



# Can Tell In Which Quarter These Longs/Lats Are Located



1.  $41^{\circ}\text{N}$ ,  $21^{\circ}\text{E}$
2.  $37^{\circ}\text{N}$ ,  $76^{\circ}\text{W}$
3.  $72^{\circ}\text{S}$ ,  $141^{\circ}\text{W}$
4.  $7^{\circ}\text{S}$ ,  $23^{\circ}\text{W}$
5.  $15^{\circ}\text{N}$ ,  $29^{\circ}\text{E}$
6.  $34^{\circ}\text{S}$ ,  $151^{\circ}\text{E}$



How many did you get right?

1. B
2. A
3. C
4. C
5. B
6. D



