

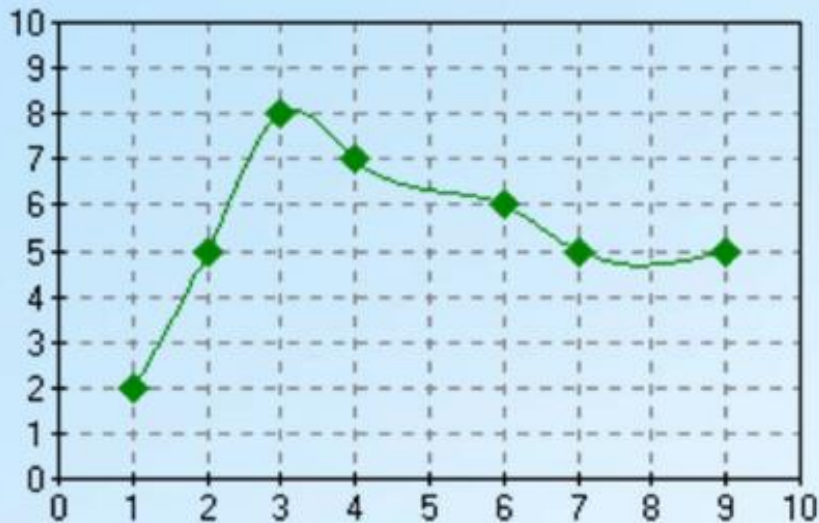
1.3: Representing Earth's Surface

Objective: Be able to...

- Identify lines on a map.
- Locate places on Earth's surface by their latitude and longitude.

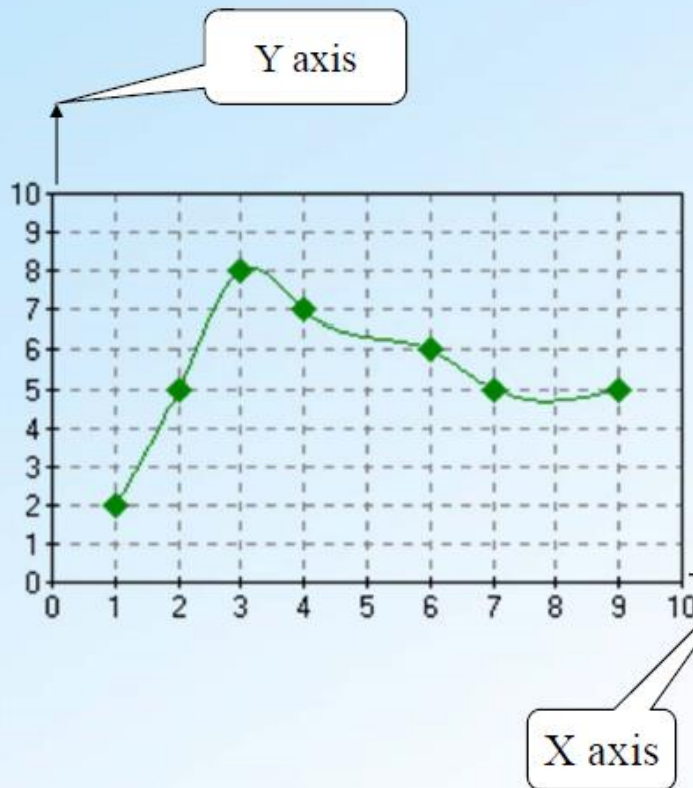
"Geologists aren't perfect, they have their faults."

>> 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

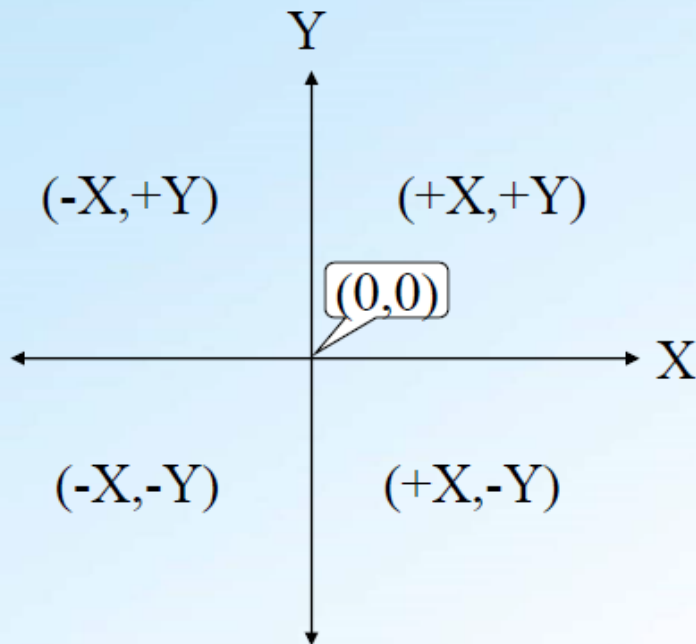


- Each point has two values:

- The “X” value that runs along the horizontal “X” axis

- The “Y” value that runs along the vertical “Y” axis

>> Typical Graph



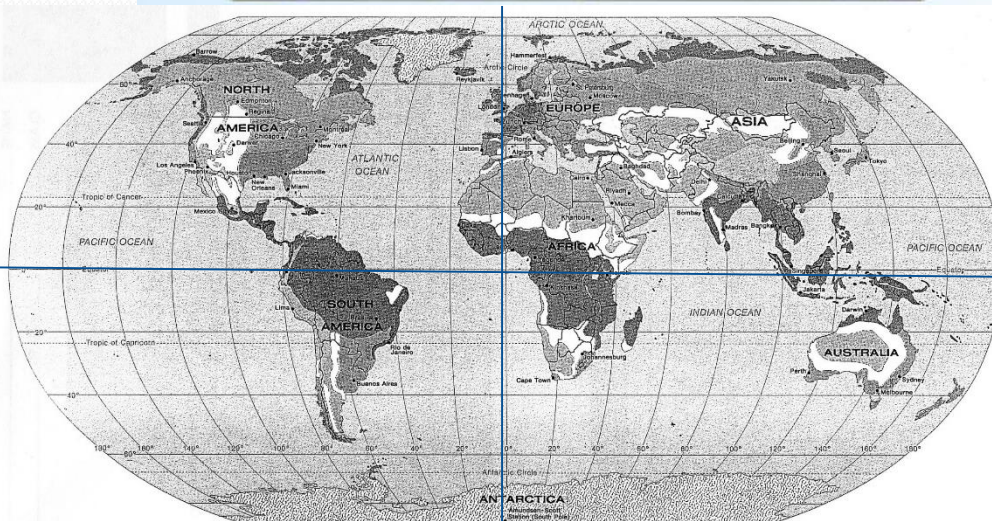
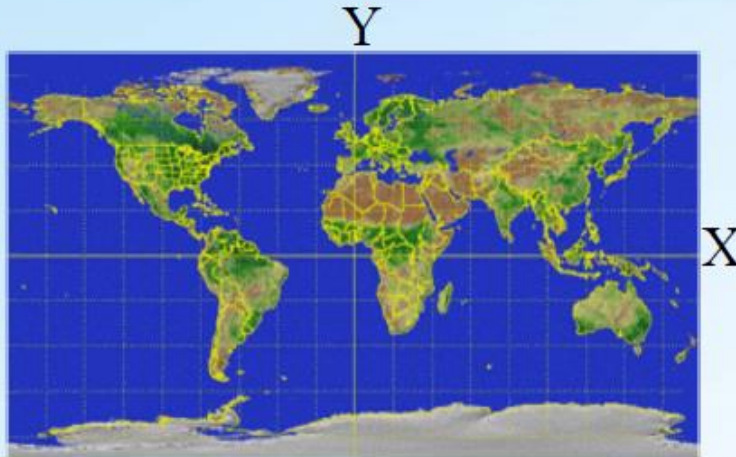
- A point can also have negative (-) values
- Negative X values are to the left of the origin $(0,0)$
- Negative Y values are below the origin

>> East West, North South on The Earth

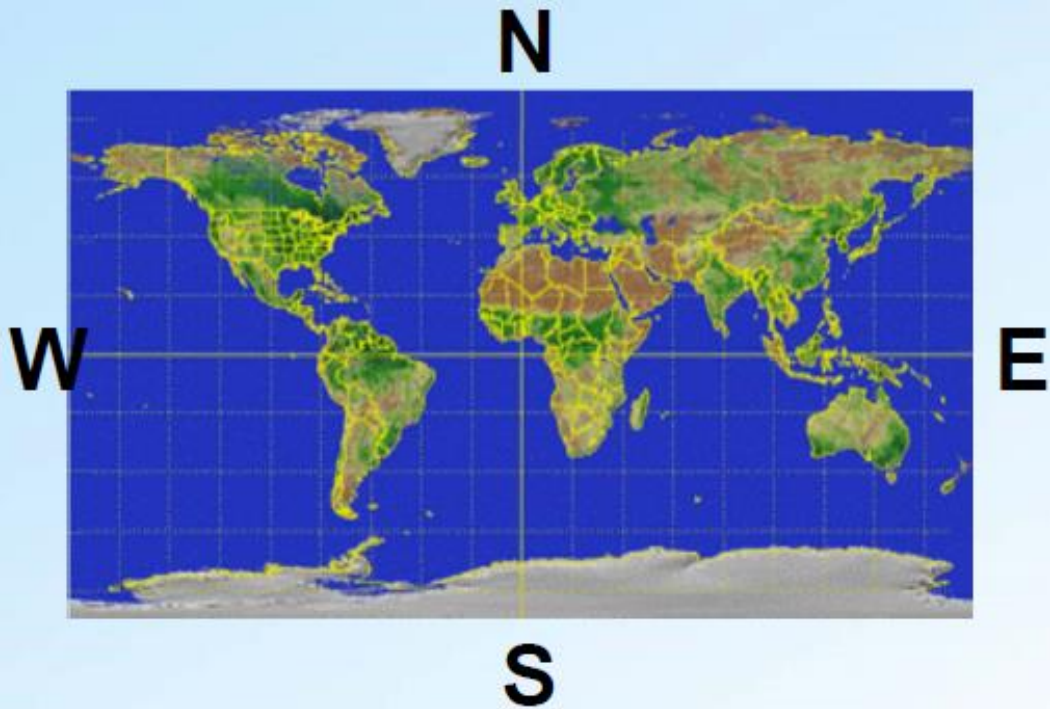
- Let the X axis be the Equator.

- 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.

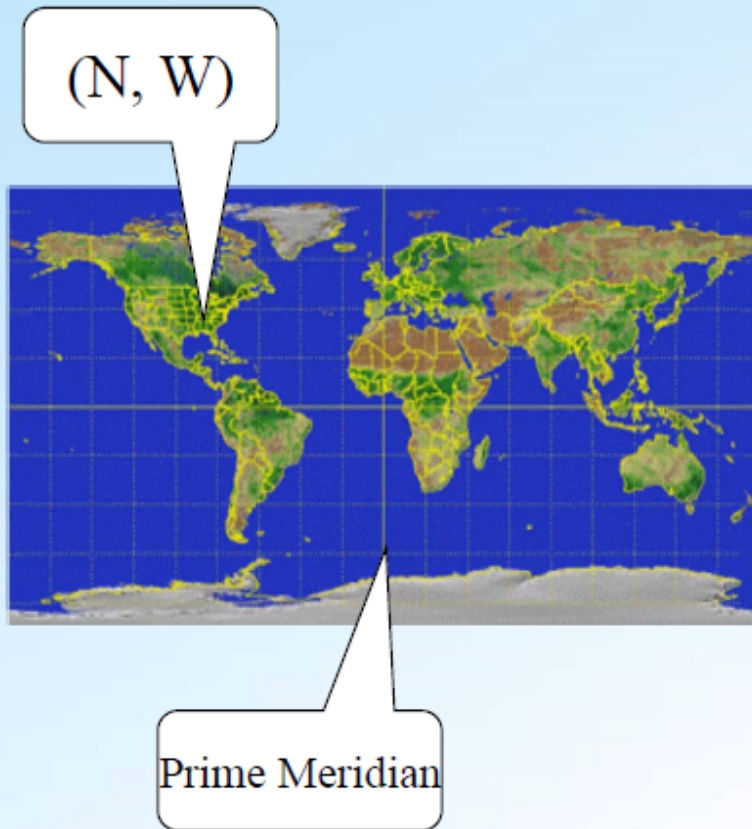


>> East West, North South on the Earth



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

>> East West, North South on the Earth

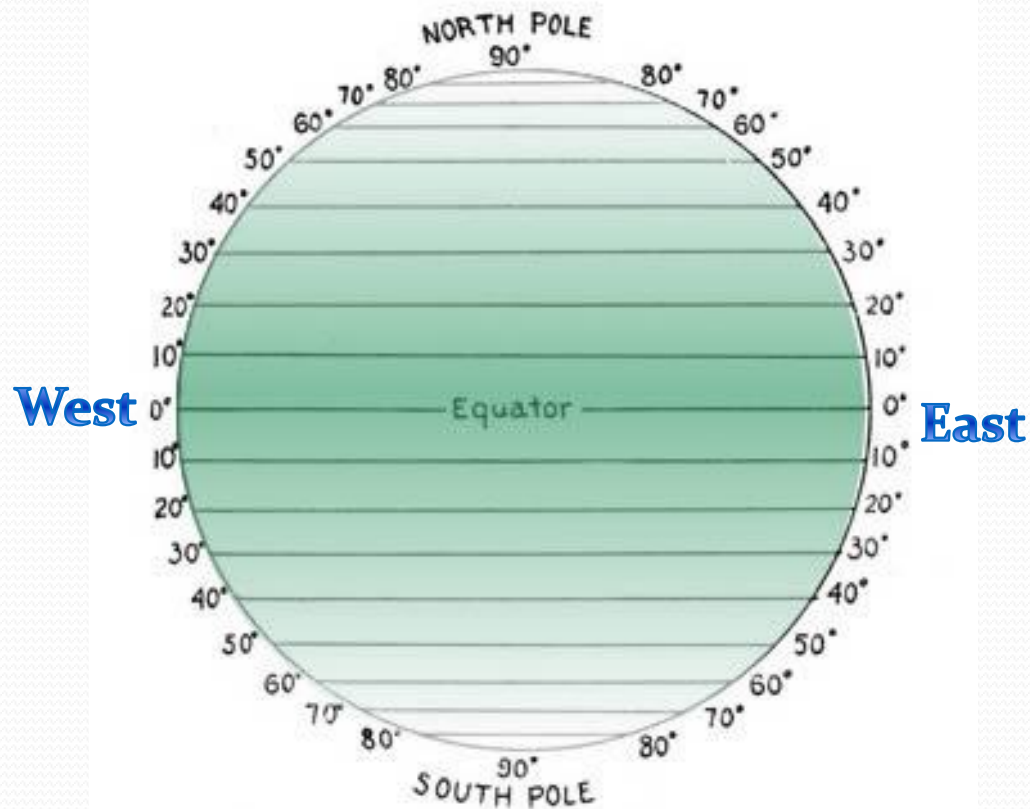


- That means all points in North America will have a North latitude and a West longitude because it is North of the Equator and West of the Prime Meridian.

Latitude (ladder)

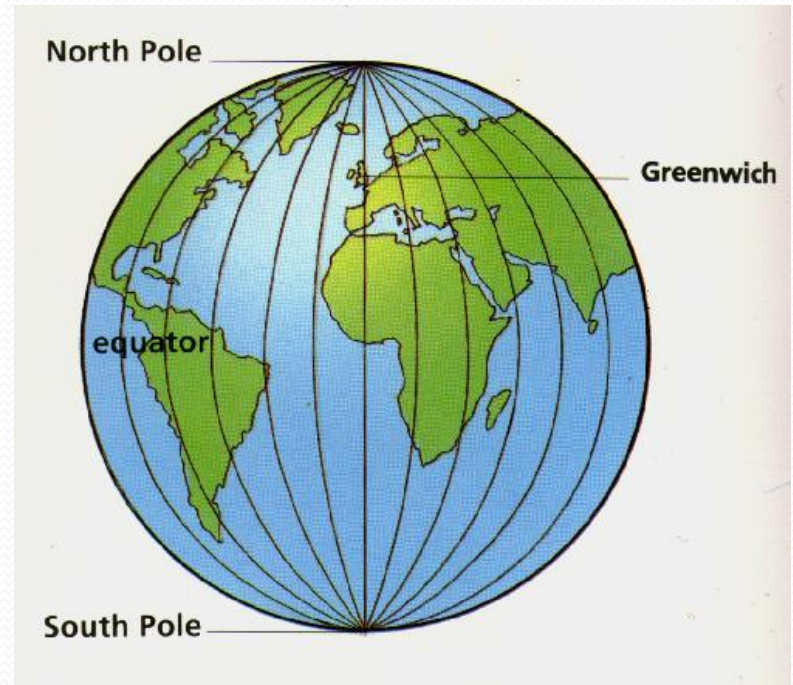
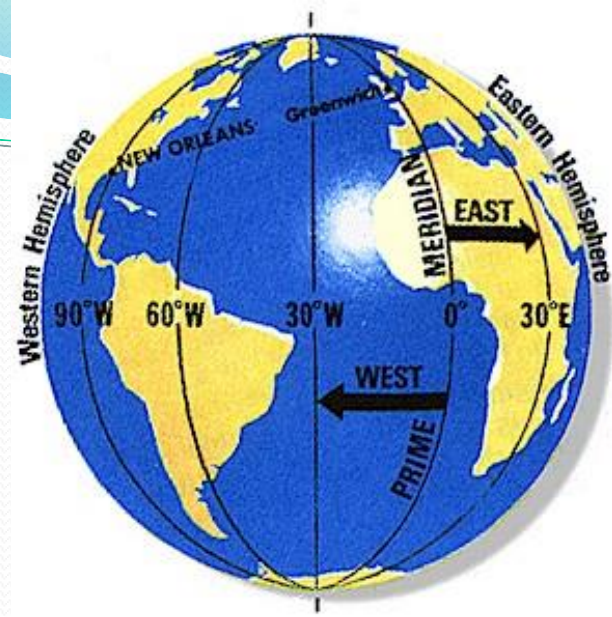


- **Latitude lines :**
 - Run east to west or are parallel to the equator
 - Equator = 0°
 - Lines run from 0° to 90°
 - measure distance from the equator
 - Labeled in degrees north or south



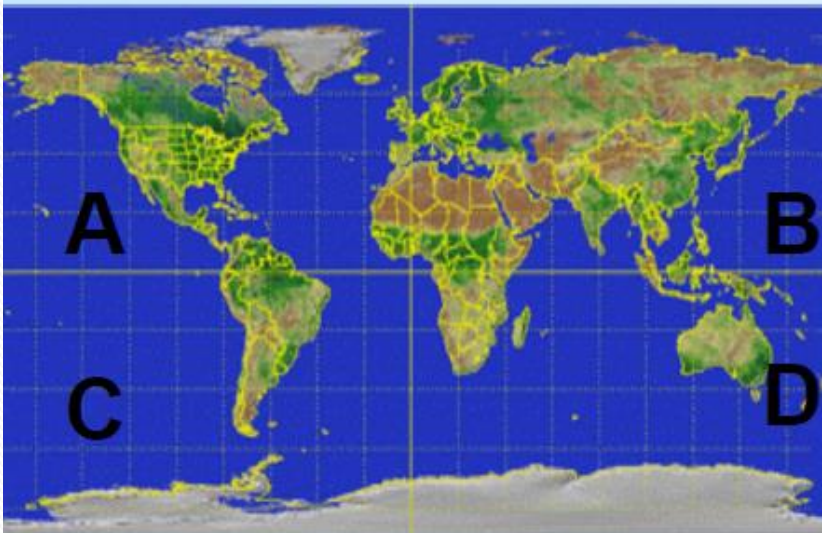
Longitude (long)

- Longitude lines:
 - Run vertically from the North pole to the South pole.
 - There are 360 equally-spaced longitude lines around the globe.
 - 0° longitude runs through Greenwich, England and is called the ***prime meridian***.





See If You Can Tell In Which Quarter These Lon/Lats Are Located



- 1. 41°N , 21°E
- 2. 37°N , 76°W
- 3. 72°S , 141°W
- 4. 7°S , 23°W
- 5. 15°N , 29°E
- 6. 34°S , 151°E

>> Let's See How You Did!

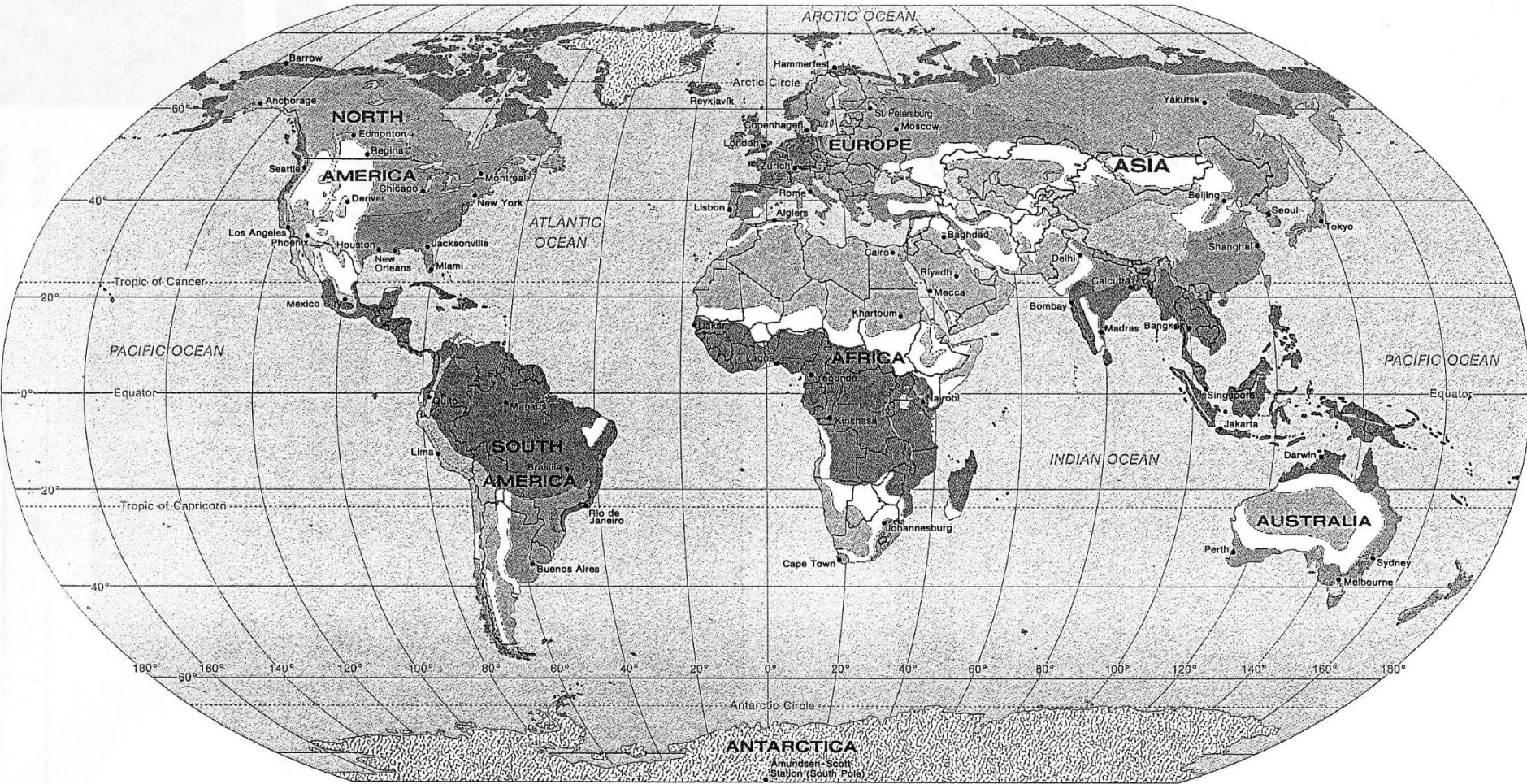
- 1. B
- 2. A
- 3. C
- 4. C
- 5. B
- 6. D

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Latitude and longitude Activity

a) 41°N , 74°W

b) 56°N , 38°E

c) 12°S , 77°W

d) 34°S , 151°E

e) 42°N , 12°E

f) 26°S , 28°E

g) 71°N , 24°E

h) 6°S , 107°E

i) 40°N , 116°E

j) 1°S , 37°E

k) 35°S , 59°W

l) 61°N , 150°W

Latitude and longitude Activity

- a) 41°N , 74°W = New York
- b) 56°N , 38°E = Moscow
- c) 12°S , 77°W = Lima
- d) 34°S , 151°E = Sydney
- e) 42°N , 12°E = Rome
- f) 26°S , 28°E = Johannesburg

1) Latitude and longitude Activity

g) 71°N , 24°E = Hammerfest

h) 6°S , 107°E = Jakarta

i) 40°N , 116°E = Beijing

j) 1°S , 37°E = Nairobi

k) 35°S , 59°W = Buenos Aires

l) 61°N , 150°W = Anchorage

2) Latitude and Longitude Activity

- a) Manaus (South America) = 2°S , 60°W
- b) Tokyo (Asia) = 36°N , 140°E
- c) Barrow (North America) = 71°N , 158°W
- d) Melbourne (Australia) = 35°S , 150°E
- e) Singapore (Asia) = 2°N , 104°E