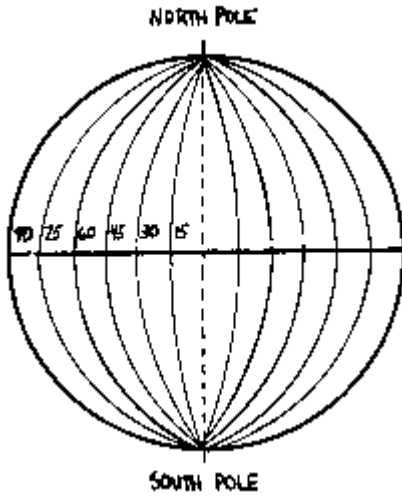


Where in the World is Baldwin New York?



Background Information

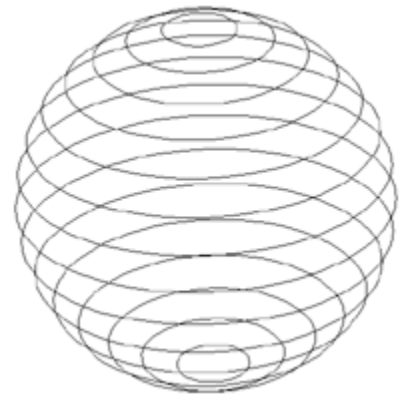
Virtually all maps have lines of longitude (also called meridians) and latitude (also called parallels) expressed on them. Together these sets of lines create an imaginary grid that can be used to locate any point on earth.



The meridians of longitude run from north to south on a globe from pole to pole and are measured in degrees. Each degree is divided into 60 parts called minutes. Each minute is divided into 60 seconds of longitude. If you were to cut along the meridians of an orange you would be cutting wedges. 0 degrees longitude is called the prime meridian and is the longitude line that runs through Greenwich, England. The rest of the meridians run 180 degrees to the east and 180 degrees to the west of the prime meridian.

For example, Baldwin has a longitude of about 73 degrees west, which means, if you headed west from Greenwich you would reach the same longitude as Baldwin once you had come to your 73rd line of longitude.

The latitude lines, or parallels, run around a globe from east to west. They are also measured in degrees, which in turn are divided into minutes, which in turn are divided into seconds. The parallel that lies at 0 degrees of latitude is called the equator. The rest of the parallels run 90 degrees north of or 90 degrees south of the equator. If you were to cut along the parallels of an orange you would be cutting disks. To differentiate between the two you can remember that the lines that run parallel to one another are called parallels or lines of latitude.



For example, Baldwin has a latitude of about 40.7 degrees north, which means, if you headed north from the equator you would reach the same latitude as Baldwin once you had come to about the 40th line of longitude.

Information on latitude and longitude is typically written something like this (these are Baldwin NY map coordinates): 40° 42'N, 73° 36'W. The latitude comes first (40° 42'N) and in this particular case lies 40 degrees and 42 minutes north of the equator. The longitude comes second (73° 36'W) and in this case lies 73 degrees and 36 minutes west of the prime meridian.

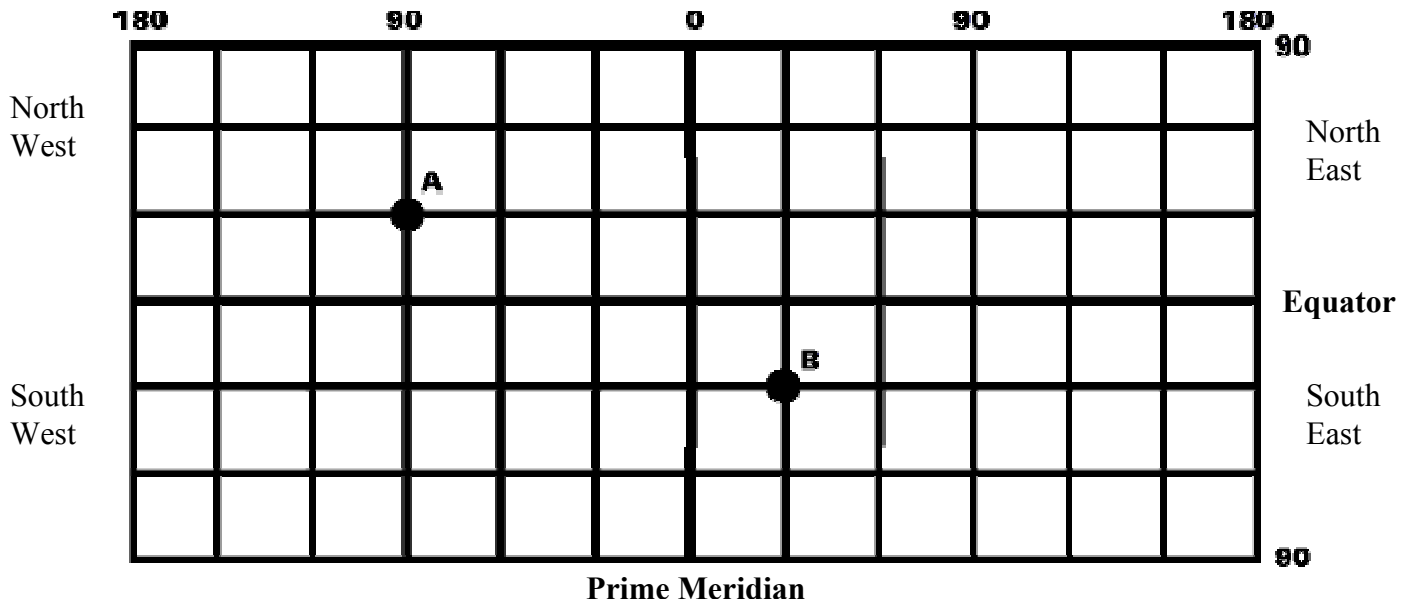
Part A

Using the background information, your Earth Science Reference Tables, your notes, or any other sources, complete the following sentences. Place the phrase that best fits. **It is possible you will use one word or phrase more than once.**

1. The lines running north-south represent degrees of _____.
They are measured from the Prime Meridian in a _____
and _____ direction. These lines are known also
as _____.
2. The lines running east-west represent degrees of _____. They are
measured from the equator in an _____ and _____
direction. These lines are known also as _____.
3. The geographic grid used on the globe is based on the division of a circle in
_____ degrees. Each degree is divided into
_____ equal parts called minutes, and each minute into
_____ equal parts called _____.
4. Latitude is numbered from _____ degrees at the equator to
_____ degrees at either pole.
5. Longitude is numbered from _____ degrees at the prime
meridian to _____ degrees at the International Date Line.
6. A degree of latitude is approximately _____ miles at the
equator and _____ miles at the poles. A degree of longitude is
approximately _____ miles at the equator and
_____ miles at the poles.

Part B

Use the grid below to answer the following questions.



1. What are the coordinates of point A?
2. Locate the same coordinates on a globe. In what country is point A located?
3. What are the coordinates of point B?
4. Locate the same coordinates on the globe. In what country is point B located?
5. Locate a point at 10° S and 45° W. Mark it CB.
6. Locate a point at 20° N and 75° E. Mark it D.
7. Mark the location of Baldwin NY on the grid using the letter B.
8. Using a map or a globe, list 4 countries found on the equator below and place them on the grid above. Create a code each country (e.g.: Canada = C, Japan = J)

Part C

Determine the Latitude and Longitude for the following cities using your Earth Science Reference Tables:

Latitude values go first. They must have a 'N' or a 'S' or it's wrong!

Longitude values go second. They must have a 'W' or an 'E' or it's wrong!

Round all values to the nearest minute!

| | | | |
|--|----------------------|----------------------|--|
| Jamestown, NY EXAMPLE | 42° 8' N, 79° 15' W, | Kingston, NY | |
| Elmira, NY | | Old Forge, NY | |
| Ithaca, NY | | Massena, NY | |
| Mt. Marcy, NY | | Riverhead, NY | |

Determine which city is located at the following points.

| | | | |
|---|--------|-----------------------------|--|
| 43° 24' N, 76° 30' W EXAMPLE | Oswego | 43° 06' N, 79° 01' W | |
| 42° 48' N, 78° 48' W | | 44° 39' N, 73° 18' W | |

1. Using a ruler, measure and record how many centimeters are between Jamestown and Elmira.
2. Using the scale on the right hand side of the map and value you calculate from above, what is the real distance between the two cities?
3. What large city's latitude is similar to that of Syracuse?
4. What is this city's latitude and longitude?

Portions of this lab were modified from the following URL's:

<http://www.cinms.nos.noaa.gov/edu/pdf/chartlesson.pdf>

<http://ludwig.missouri.edu/137/lat-lab1.html>