



Latitude and Longitude, Lab#1, G137

Refer to grid lines on a globe:

1. The lines running north-south represent degrees of _____ which is measured from the _____ in a _____ and _____ direction. These lines are known also as _____.

2. The lines running east-west represent degrees of _____ which is measured from the _____ 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.

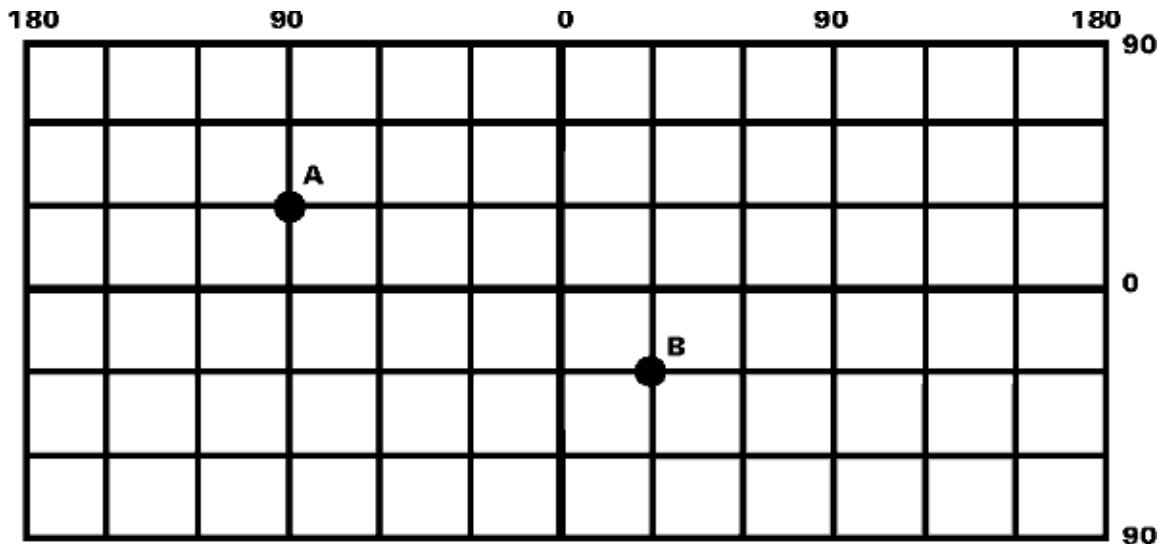
LENGTH OF A DEGREE OF LONGITUDE: A degree of longitude varies in length at different latitudes, becoming shorter as the latitude increases. The table below illustrates this:

Length of a Degree of Longitude			
At Latitude	Statute Miles	At Latitude	Statute Miles
40	53.063	90	0.000
30	59.956	80	12.051
20	65.026	70	23.729
10	69.128	60	34.674
0	69.171	50	44.552

Based upon the above table, answer questions 7-12.

7. How do the length of parallels differ as one approaches the poles?
8. What is the distance in miles around the world at the equator?
9. What is the distance around the world at 40 ° South Latitude?
10. At which latitude is the distance around the world one-half of the equatorial distance?
11. How many miles between a point 60 ° North Latitude and 30 ° West longitude and a point 60 ° North Latitude and 60 ° East Longitude?
12. How many miles between a point 30 ° South Latitude and 60 ° West Longitude and a point 30 ° South Latitude and 80 ° East Longitude?
13. Define GEOGRAPHIC COORDINATE.

USE THE FIGURE BELOW TO ANSWER QUESTIONS 14-19



14. What are the coordinates of point A?
15. Locate the same coordinates on a globe. In what country is point A located?
16. What are the coordinates of point B?

17. Locate the same coordinates on the globe. In what country is point B located?
18. Locate a point at 10° South Latitude and 45° West Longitude. Mark it CB.
19. Locate a point at 20° North Latitude and 75° East Longitude. Mark it D.
20. By examining the coordinates only, determine the APPROXIMATE distance between:
- a. New Orleans and St. Louis _____
 - b. Philadelphia and Denver _____
 - c. Wilmington, N.C. and Los Angeles _____
 - d. Madrid, Spain and Edinburgh, Scotland _____
21. Write the following in their correct form:
- 60 degrees, 29 minutes, 5 seconds, North Latitude
- 10 degrees, 20 minutes, 50 seconds, South Latitude
- 125 degrees, 45 minutes, 3 seconds, West Longitude
22. Correct the errors in the following:
- $89^{\circ} 47' 65''$ S _____
- $185^{\circ} 24' 37''$ E _____
- $65^{\circ} 77' 42''$ W _____
- $40^{\circ} 50' 21''$ S _____
23. What is the latitude and longitude of Chicago Ill.?
24. What large city has a similar latitude to that of Chicago (Europe)?
25. What is this cities Latitude and longitude?
26. What large city in Asia has a similar latitude to that of Chicago?
27. What is this city's Latitude and Longitude?

28. The term "antipodes" refers to two places on opposite sides of the earth so that a straight line drawn through the earth from one to the other passes through the center of the earth. To be exact antipodes, two places must be 180° of longitude away from each other, antipode must be as many degrees north latitude as the other is south latitude.

What are the coordinates of the antipode of Chicago?

What is the nearest large land mass?

What is the nearest large city?

29. Below are some geographic grid coordinates for selected cities of the world. Examine an atlas and identify each city.

$34^\circ 03' N, 118^\circ 15' W$

$34^\circ 20' S, 58^\circ 30' W$

$52^\circ 21' N, 4^\circ 52' E$

$61^\circ 12' N, 149^\circ 48' W$

30. A number of cities are listed below. Using an atlas, give latitude and longitude of each in degrees and minutes.

Milwaukee, Wisconsin

Quito, Ecuador

Calcutta, India

London England

Capetown, South Africa

Moscow, Russia

Miami, Florida