Name _____   Date _____

Graphing Homework #___

Longitude and Latitude is a coordinate system of imaginary lines which is used to locate points on the Earth's surface. The reference line for latitude is the Equator. Lines of latitude are called parallels and are measured in degrees North or South of the Equator. The maximum value for latitude is 90° which is the poles. Other important lines of latitude include the Tropic of Cancer at 23.5°N and the Tropic of Capricorn at 23.5°S. Locations found between the tropics will have the sun strike at a 90° angle at some point during the year. The latitude of an area is an important factor in Climate. As the latitude increases the average temperature of an area will decrease because the angle of the sun's rays becomes less.

The reference line for longitude is the prime meridian which runs through the Town of Greenwich, England. Lines of longitude are called meridians and are measured in degrees East or West of the Prime Meridian. The maximum Longitude is the 180 meridian. This is also called the international date line. Longitude is related to time. A change of 15° of longitude will change the time by one hour. As you go East time will become later and as you go west time will become earlier.

The data below represents differences in Longitude and the number of hours of time for the difference.

What are lines of latitude and lines of longitude called?
_____
_____

What is the maximum value for latitude?
_____

What happens to the angle of the sun for a location in the tropics?

_____

_____

What is another name for the 180° meridian?

_____

_____

Difference in Longitude	Time Difference (hours)
0	0
15	1
30	2
60	4
75	5
90	6
105	7
150	10

Create a line graph from the data table on the attached graph paper. (12 points total)

Difference in Longitude should be plotted on the horizontal (x) axis and Time difference should be plotted on the vertical (y) axis.

- • create a uniform scale for Difference in Longitude on the x - axis (2 points)
- • label the x - axis with both a label and a unit. (2 points)
- • create a uniform scale for Time difference on the y axis. (2 points)
- • label the y - axis with both a label and a unit. (2 points)
- • plot all eight points on your graph (2 points)
- • connect the points to draw your line (1 point)
- • put an appropriate title on top of your graph. (1 point)   © K. Abbott 2005
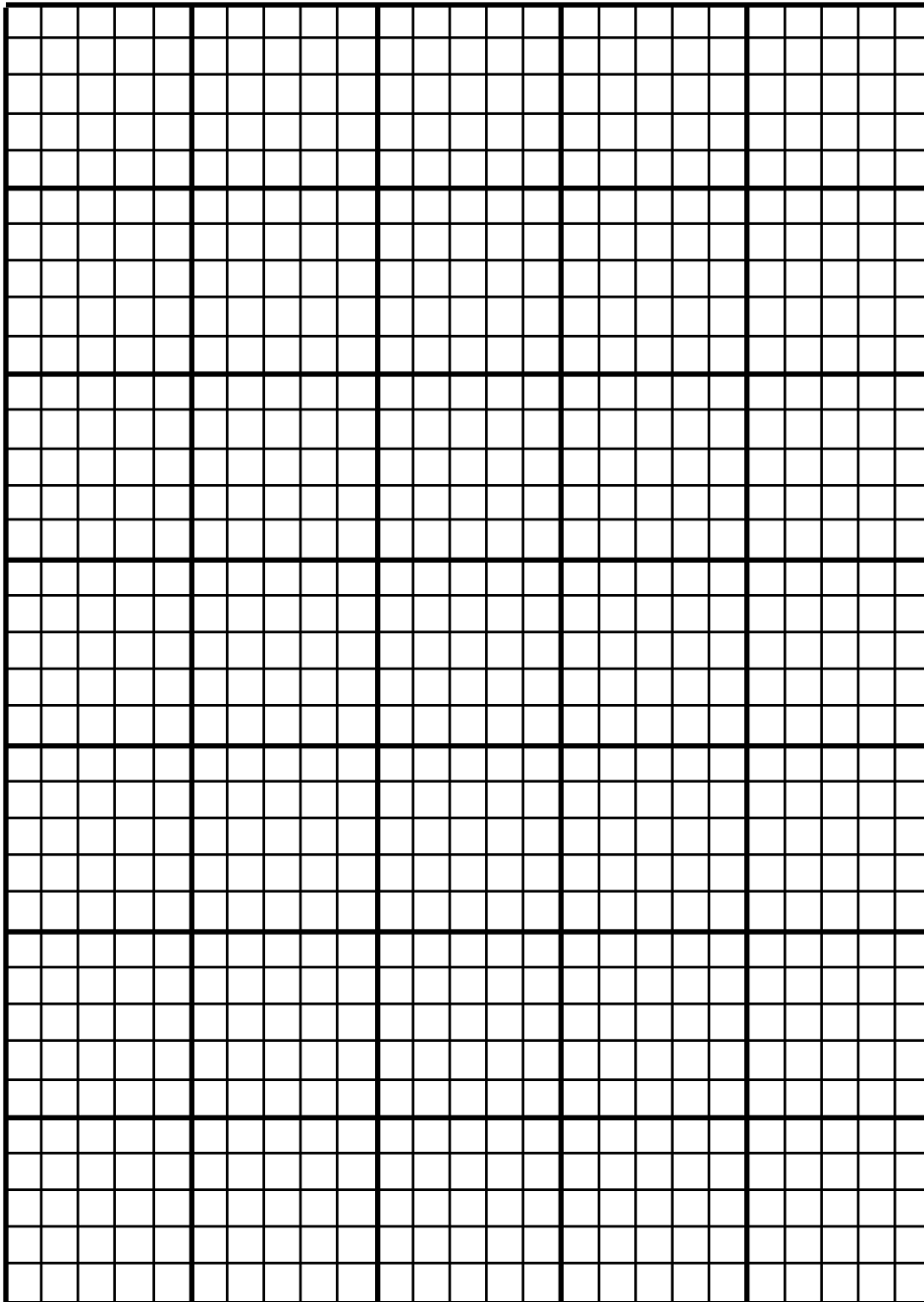
complete chart (2 points)

	x-axis	y-axis
Range		
Boxes		
Divide		
Round up		

Answer the following questions in complete sentences. (2 points each)

1) What would happen to the length of the day if the Earth rotated 30° per hour instead of 15° per hour?

2) If 2 locations are on the same meridian of longitude, what do you know about the time in those locations?

3) How many hours apart are two cities if one is found at 45 °E and the other is at 30°W?
   (Draw a line in high liter on the graph above to show how you estimated your answer)

4) If there is a 9 hour difference in time between 2 cities, how many degrees of longitude are they apart?
   (Draw a line in high liter on the graph above to show how you estimated your answer)

5) If it is 4 am at 105°E, what is the time at 75°W? (Solve by drawing a map and show work)