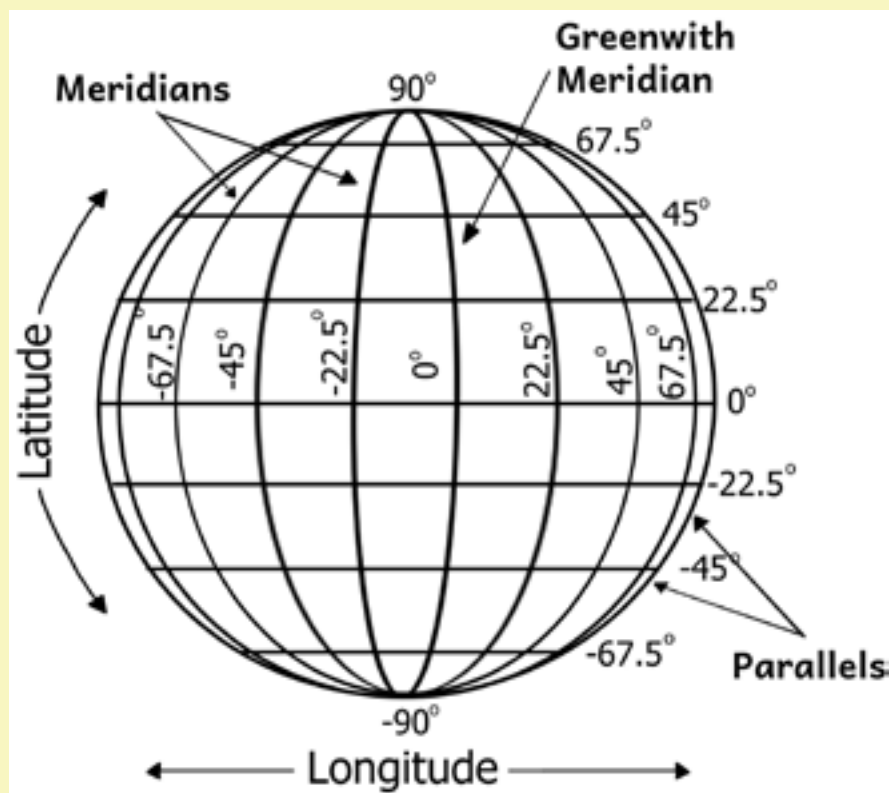## determining time in different places using Longitudes.

In the previous lesson, you located position and places using lines of latitudes and longitudes, in this session, you should be able to determine time using longitude.

: How can you determine time using longitude?

There are 360 longitudes.

1. Longitudes run from 90° North Pole to 90° South Pole.

2. They are semi-circles.

3. Maximum distance between two longitudes are at the equator.

4. Our earth is spherical (round) in shape which is 360°

5. Earth takes 24 Hours to complete one rotation.

6. It means, we can say that 360° are covered in 24 hours.

7. Therefore, in 1 hour, earth will rotate 360^0 divided by 24 = 15°

So it takes 1 hour for 15 degrees, 2 hours for 30 degrees, 3 for 45 degrees…………..and so on.

Now,

> Let's calculate in Minutes.
>
> 24 hours = 24 x 60 = 1440 minutes.
>
> We can also say that earth completes one rotation (360°) in 1440 minutes.
>
> So, how much time will it take to reach from one longitude to the other longitude?
>
> 1440 divided by 360 = 4 minutes.
>
> Therefore, there is a time difference of 4 minutes between any two longitudes.

Example:

If it is 12:00 PM at the Prime Meridian (0° Longitude), what time is it at 30° East Longitude?

o   Longitude Difference: 30° East - 0° = 30°

o   Time Difference: 30° / 15°/hour = 2 hours

o   Time at 30° East: 12:00 PM + 2 hours = 2:00 PM

If it is 12:00 PM at 30° West Longitude, what time is it at 0° Longitude (Prime Meridian)?

o   Longitude Difference: 30° West - 0° = 30°

o   Time Difference: 30° 15°/hour = 2 hours

o   Time at 0° Longitude: 12:00 PM - 2 hours = 10:00 AM