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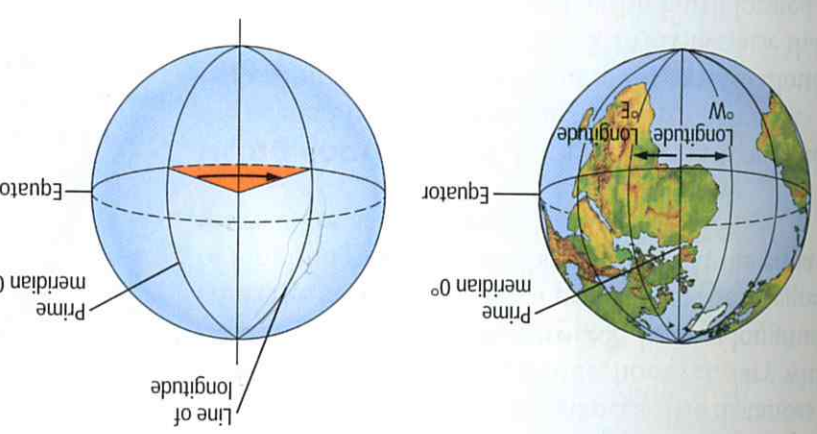
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■ **Figure 2.2** The reference line for longitude is the prime meridian. The degree value of each line of longitude is determined by measuring the imaginary angle created between the prime meridian, the center of Earth, and the line of longitude as seen on the globe on the right.

Degrees of latitude Each degree of latitude is equivalent to about 111 km on Earth's surface. How did cartographers determine this distance? Earth is a sphere and can be divided into 360°. The circumference of Earth is about 40,000 km. To find the distance of each degree of latitude, cartographers divided 40,000 km by 360°. To locate positions on Earth more precisely, cartographers break down degrees of latitude into 60 smaller units, called minutes. The symbol for a minute is ' '. The actual distance on Earth's surface of each minute of latitude is 1.85 km, which is obtained by dividing 111 km by 60.

A minute of latitude can be further divided into seconds, which are represented by the symbol ". Longitude is also divided into degrees, minutes, and seconds.

Longitude

To locate positions in east and west directions, cartographers use lines of longitude, also known as meridians. As shown in **Figure 2.2**, **longitude** is the distance in degrees east or west of the prime meridian, which is the reference point for longitude. The **prime meridian** represents 0° longitude. In 1884, astronomers decided that the prime meridian should go through Greenwich, England, home of the Royal Naval Observatory. Points west of the prime meridian are numbered from 0° to 180° west longitude (W); points east of the prime meridian are numbered from 0° to 180° east longitude (E).

Semicircles Unlike lines of latitude, lines of longitude are not parallel. Instead, they are large semicircles that extend vertically from pole to pole. For instance, the prime meridian runs from the north pole through Greenwich, England, to the south pole. The line of longitude on the opposite side of Earth from the prime meridian is the 180° meridian. There, east lines of longitude meet west lines of longitude. This meridian is also known as the International Date Line, and will be discussed later in this section.

VOCABULARY

SCIENCE USAGE V. COMMON USAGE

Minute

Science usage: a unit used to indicate a portion of a degree of latitude

Common usage: a unit of time comprised of 60 seconds