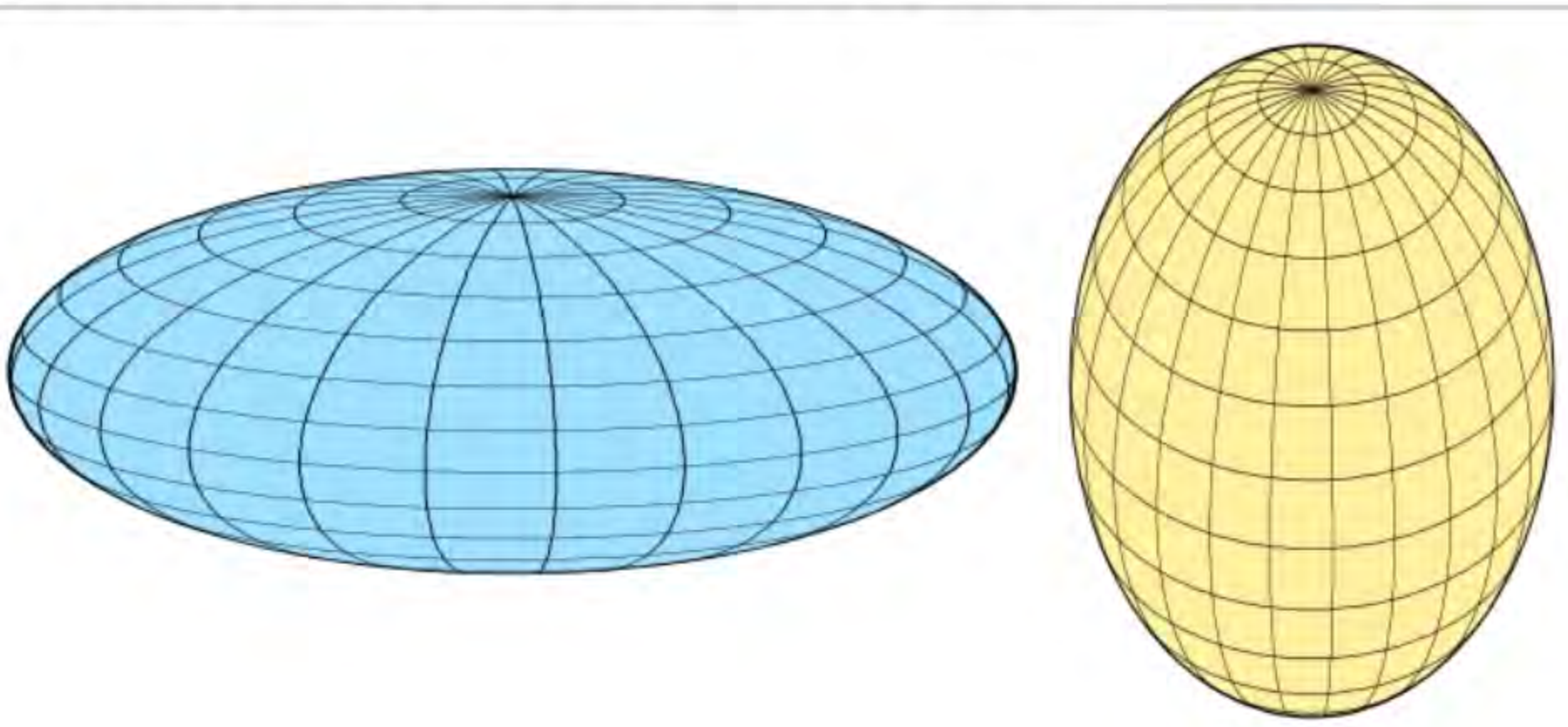
Whole Circle Bearing

- The whole circle bearing (WCB) is defined as the bearing of the line at any point which is measured with respect to the Meridian is known as **Whole circle bearing.**
- The **Whole Circle bearings** values range from **0° to 360°.**
- The Whole circle bearing is generally used in the **Prismatic compass.**
- The whole circle bearing is used to measure the angle in the clockwise direction from the magnetic North.
- The Prismatic compass is graduated by Whole circle bearing.

Spheroids with vertical rotational axes

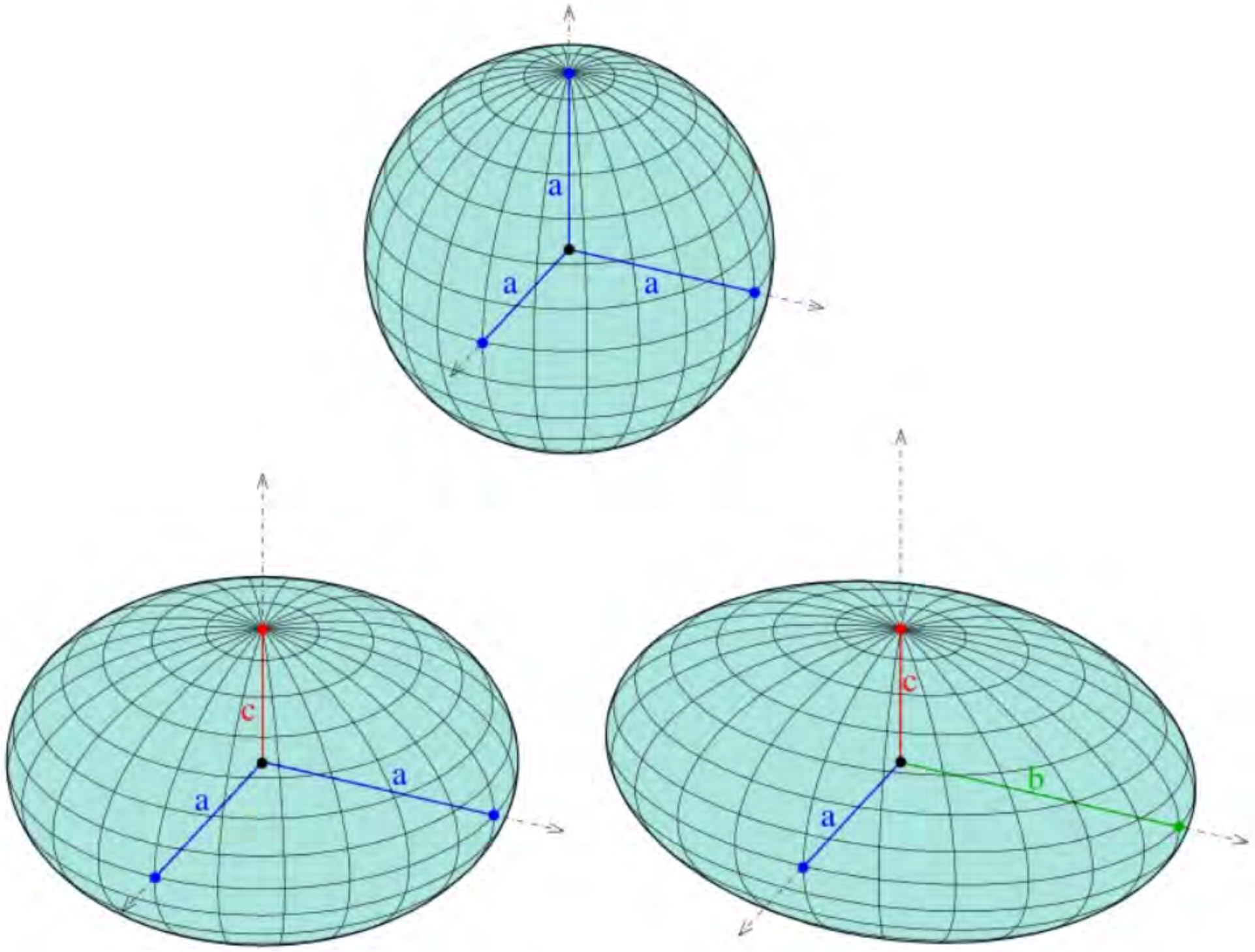


oblate	*prolate*

A **spheroid**, or **ellipsoid of revolution**, is a quadric surface obtained by rotating an ellipse about one of its principal axes; in other words, an ellipsoid with two equal semi-diameters. A spheroid has circular symmetry.

If the ellipse is rotated about its major axis, the result is a *prolate* (elongated) spheroid, shaped like an American football or rugby ball. If the ellipse is rotated about its minor axis, the result is an *oblate* (flattened) spheroid, shaped like a lentil or a plain M&M. If the generating ellipse is a circle, the result is

An **ellipsoid** is a surface that may be obtained from a sphere by deforming it by means of directional scalings, or more generally, of an affine transformation.



Examples of ellipsoids with equation $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$:

Sphere, a = b = c = 4; *top*

Spheroid, a = b = 5, c = 3; *bottom left*,

Tri-axial ellipsoid, a = 4.5, b = 6; c = 3, *bottom right*

An ellipsoid is a quadric surface; that is, a surface that may be defined as the zero set of a polynomial of degree two in three variables.

Example of Whole Circle Bearing (WCB)

- If the survey line falls between the **first quadrant** then the **Whole Circle Bearing** lies between the **0° to 90°.**
- If it lies between the **second quadrant** then the **Whole Circle Bearing** of that survey line lies between **90° to 180°.** If it lies in the **third quadrant** then the Whole circle bearing will be between the **180° to 270°.**
- And in the **fourth quadrant**, the **Whole Circle Bearing** values range between **270° to 360°.**
- The Whole circle bearing of any line, can exceed up to 90°, it can be reduced to the

- And in the **fourth quadrant**, the **Whole Circle Bearing** values range between **270° to 360°.**
- The Whole circle bearing of any line, can exceed up to 90°, it can be reduced to the corresponding angle which is less than 90°, and has the same numerical value to the trigonometrical functions.
- This type of angle is also known as a **Reduced bearing**.
- The examples of whole circle bearing are as follows.
    - **30°,45°,80°,120°,230°, and 320°, etc**

The **Quadrantal bearing** is also known as a **Reduced bearing**. Quadrantal bearings are generally measured from the North or South direction towards the East or West direction.

The quadrantal bearing or reduced bearing can be measured either in a clockwise or anticlockwise direction.

Geographic location refers to a position on the Earth. Your absolute geographic location is defined by two coordinates, longitude and latitude. These two coordinates can be used to give specific locations independent of an outside reference point. Relative location, on the other hand, defines a location in terms of another. For example, Lille is north of Paris. These two types of geographic location are useful in different circumstances.

The coordinate system of geographic location is used to represent specific locations on the globe. Because longitude and latitude lines form a grid on the Earth, you can pinpoint precise locations with just two coordinates. Hence, these coordinates are extremely useful whenever global navigation is concerned: Global positioning devices, maps and other navigational services benefit from such an accurate way of noting position.

Earth scientists determine positions on earth by the angular measurements of latitude and longitude. The earth has a fixed circumference, so you can convert these to feet by calculating the distance the angles defined by latitude and longitude sweep. Angular measurements range range from -180 degrees and 180 degrees with respect to a reference, which is the equator when measuring latitude and the prime meridian when measuring longitude. You'll need your calculator to convert these angles to distances from their respected references.