This is described by Bhāskara as follows.[43]

> Subtract the degrees of the latitude of one of the towns mentioned above from the degrees of the [local] latitude, then multiply [the difference] by 3299 minus 8/25, and divide [the product] by the number of degrees in a circles [i.e., 360]. The resulting *yojana*-s constitute the *koṭī* [upright of the right-angled "longitude" triangle]. The oblique distance from the local place and the town [on the prime meridian] chosen above, which is known in the world by the utterance of common people, is the hypotenuse. The square root of the difference between their

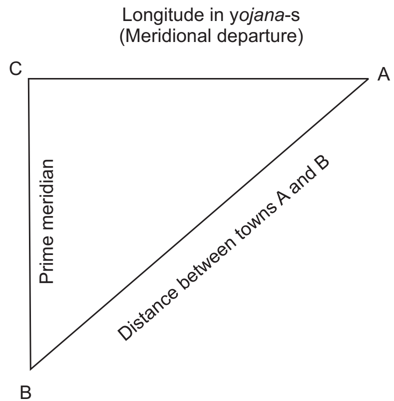

Figure 4.1: **Indian longitude triangle.** The longitude triangle used in India as a "gross" method of determining local longitude

> squares [i.e., between the square of the hypotenuse and the upright] is defined by some astronomers to be the distance [in *yojana*-s of the local place].

The only point which requires explanation in the above quote is the figure of $3299 - \frac{8}{25}$. Bhāskara takes the radius of the earth to be 1050 yojana-s,[44] and the value of π to be 3.1416, so that the circumference of the earth works out to $1050 \times 3.1416 = 3298.68 = 3299 - \frac{8}{25}$. When divided by 360° this gives the distance per degree latitude. So, what Bhāskara is saying is only that the difference (in degrees) of latitudes of A and B when multiplied by the distance per degree latitude gives the arm BC of the triangle. From a knowledge of the hypotenuse AB and the side BC one can evidently calculate the remaining side CA.