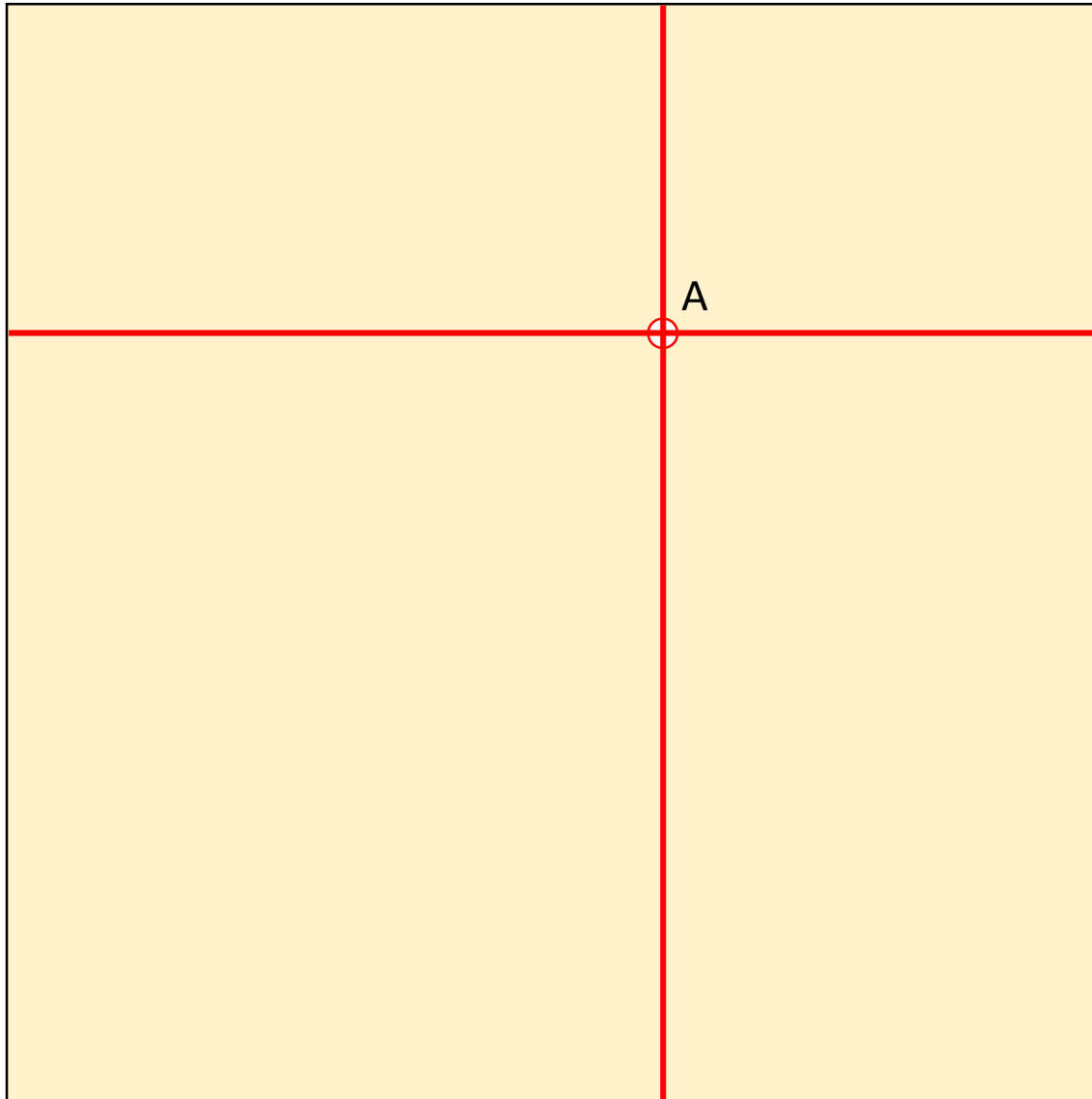




## **Drawing a sundial with an equinoctial ruler**

Tutorial with the Shadows software, proposed by François Blateyron  
march 2016

[www.shadowspro.com](http://www.shadowspro.com)



Choose the material you want to use for the sundial plate, on which you will draw the sundial layout (tiles, wood, stone, metal, etc.)

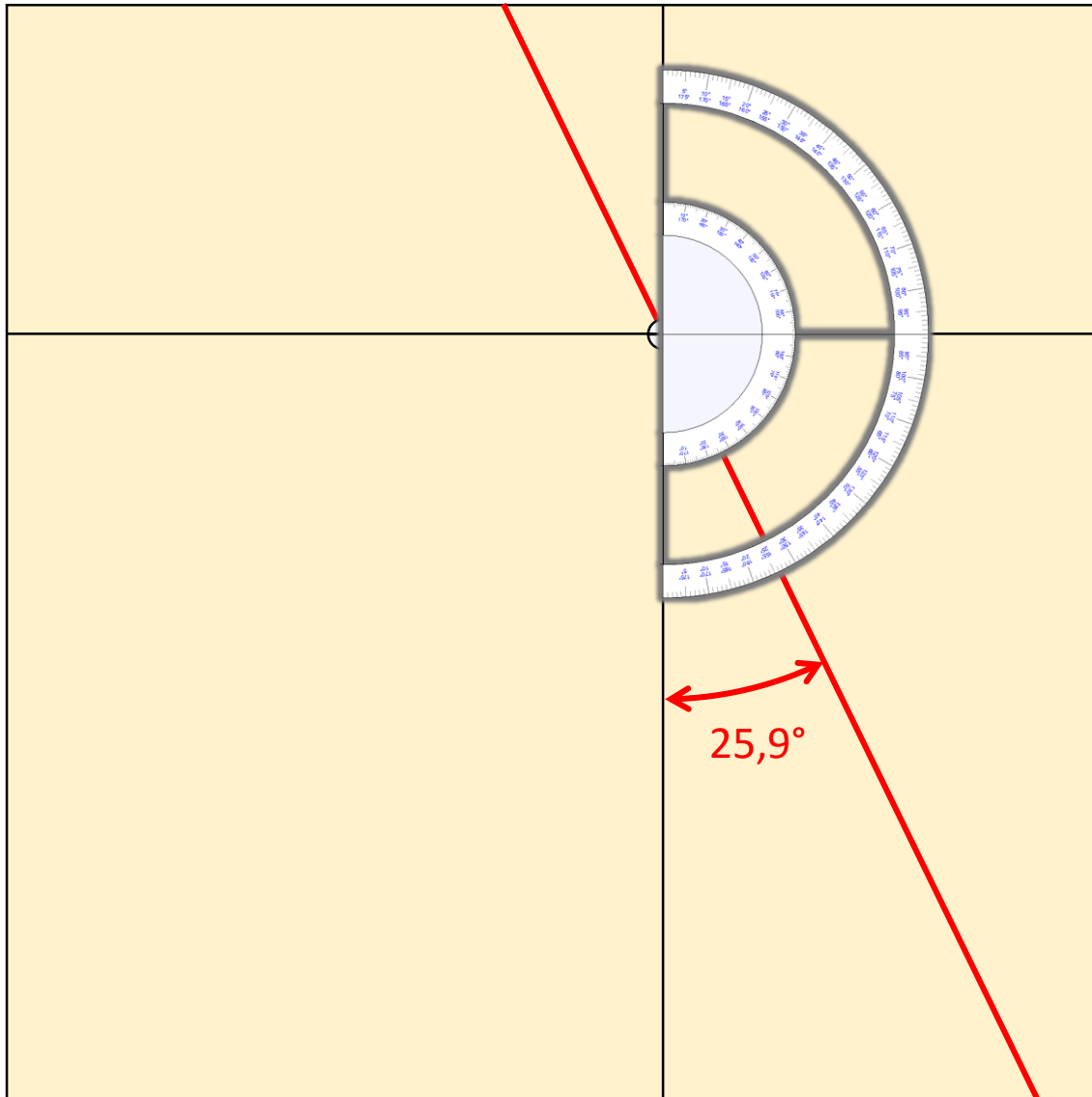
The plate size here is 150 x 150 cm.

The sundial is designed with Shadows at scale 1/10, i.e. 150 x 150 mm.

All measures given by Shadows will then be multiplied by 10.

**Step 1.** Place the sundial origin (point A) somewhere on the plate.

**Step 2.** Draw a vertical line and a horizontal line from this point A.

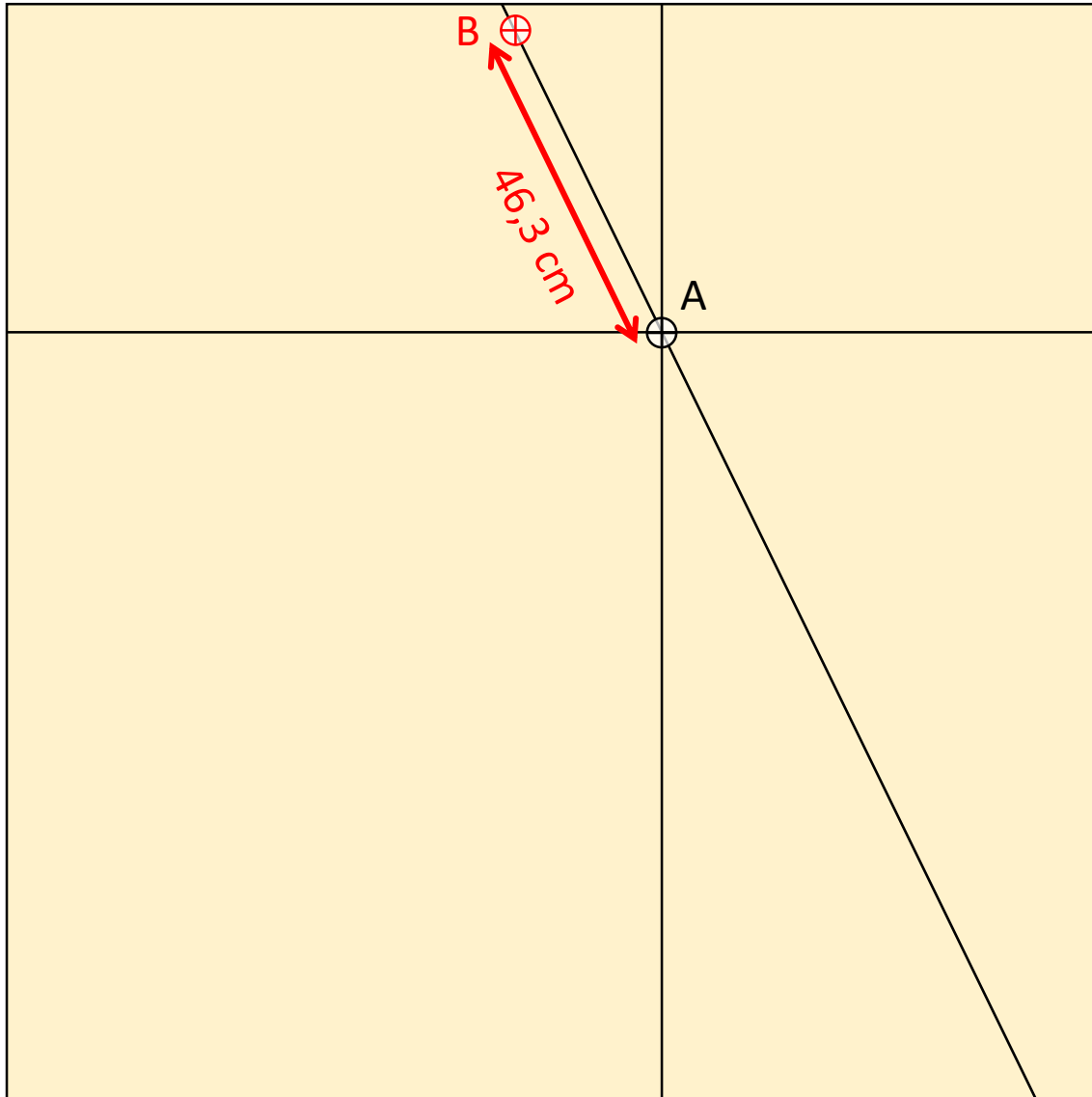


If the sundial is declining, draw the sub-style line:

**Step 3.** Measure the sub-style angle given by the sundial technical data sheet in Shadows, with a protractor.

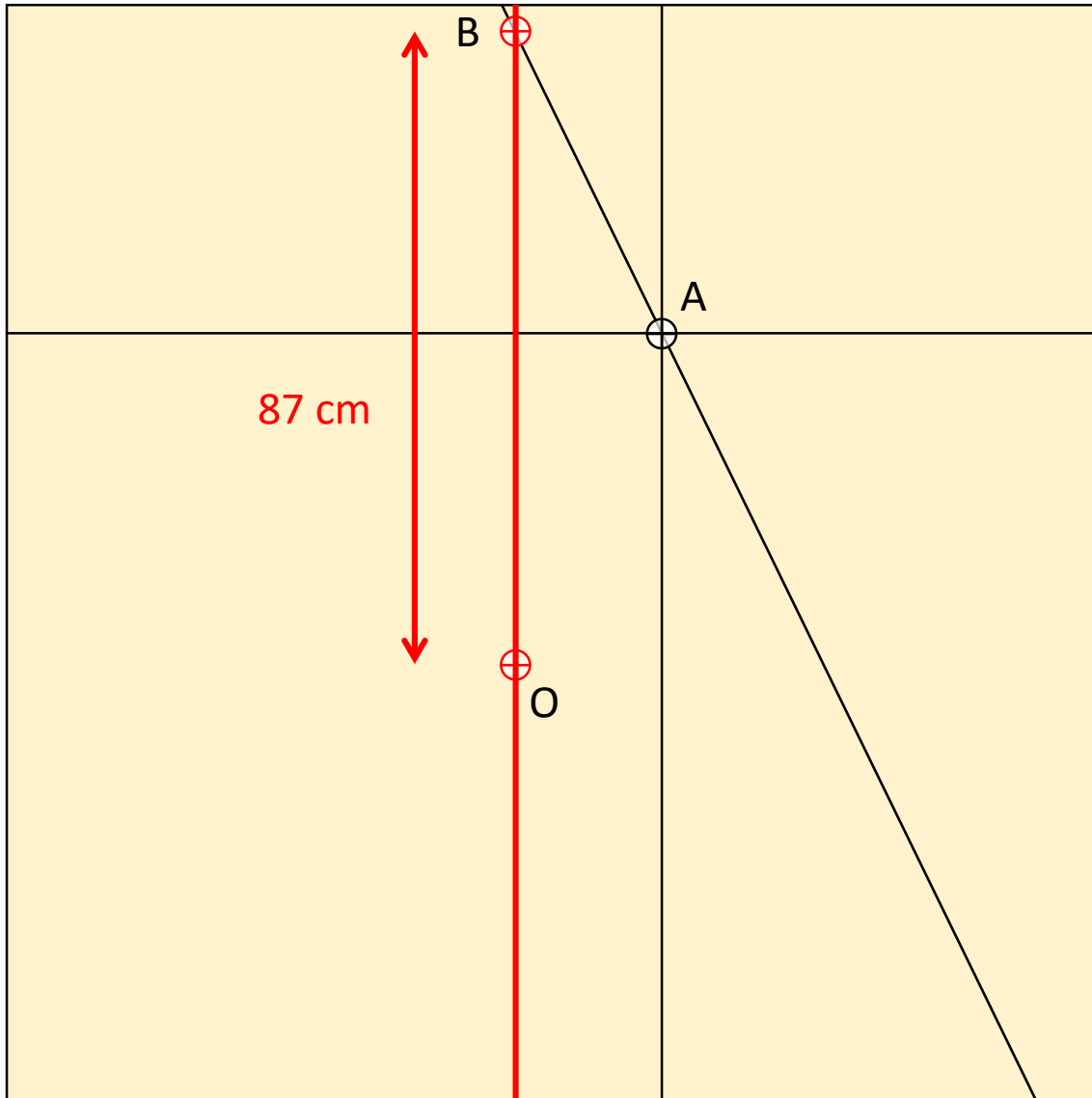
Here in our example, it is  $25,9^\circ$  (measured from the vertical)

If the sundial is not declining, then the sub-style line will be vertical (angle of  $0^\circ$ )



**Step 4.** Mark point B by measuring the distance A-B (length of the style base) along the sub-style line.

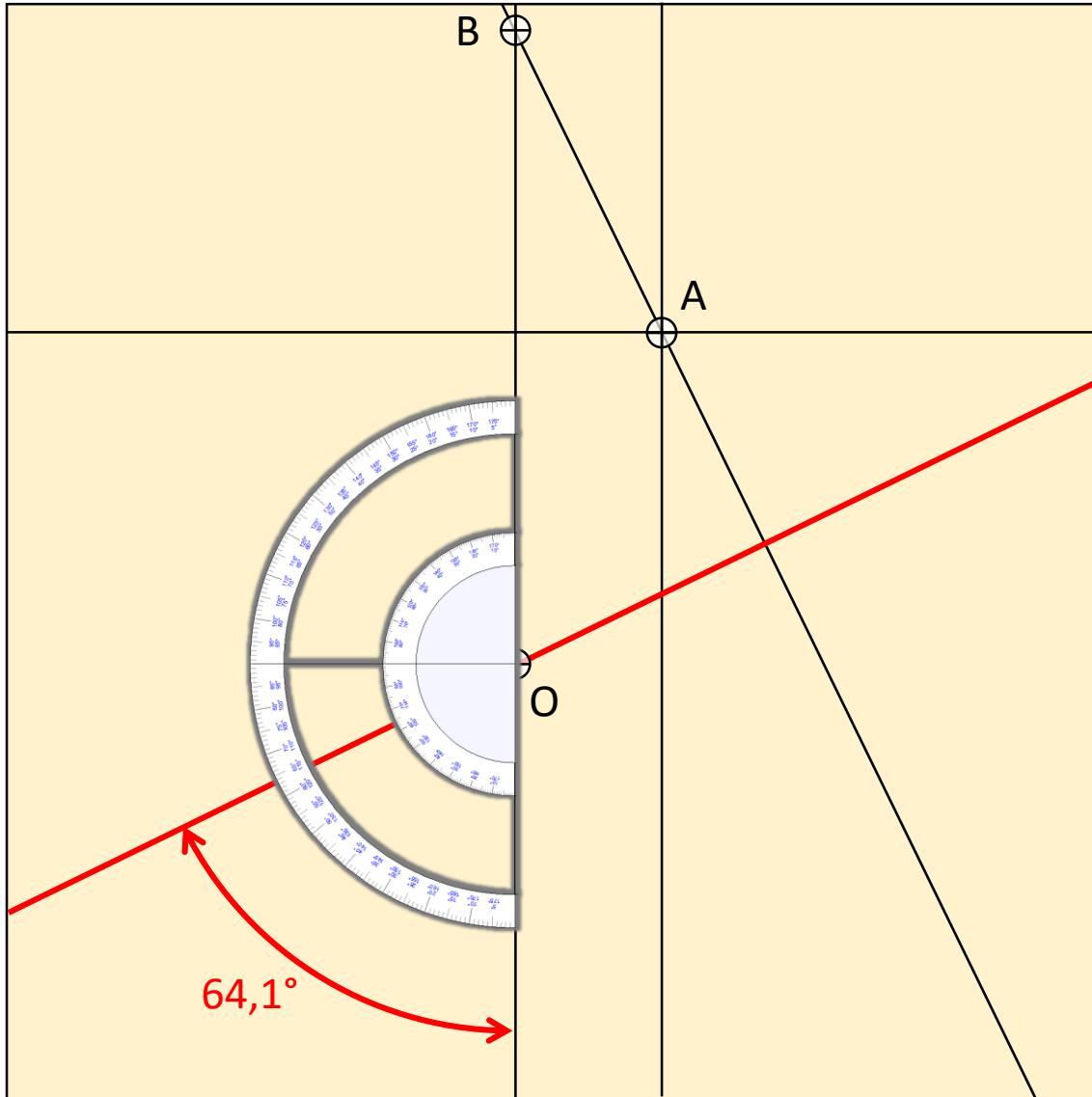
$$A-B = 46,3 \text{ cm}$$



**Step 5.** Draw a vertical line from point B.

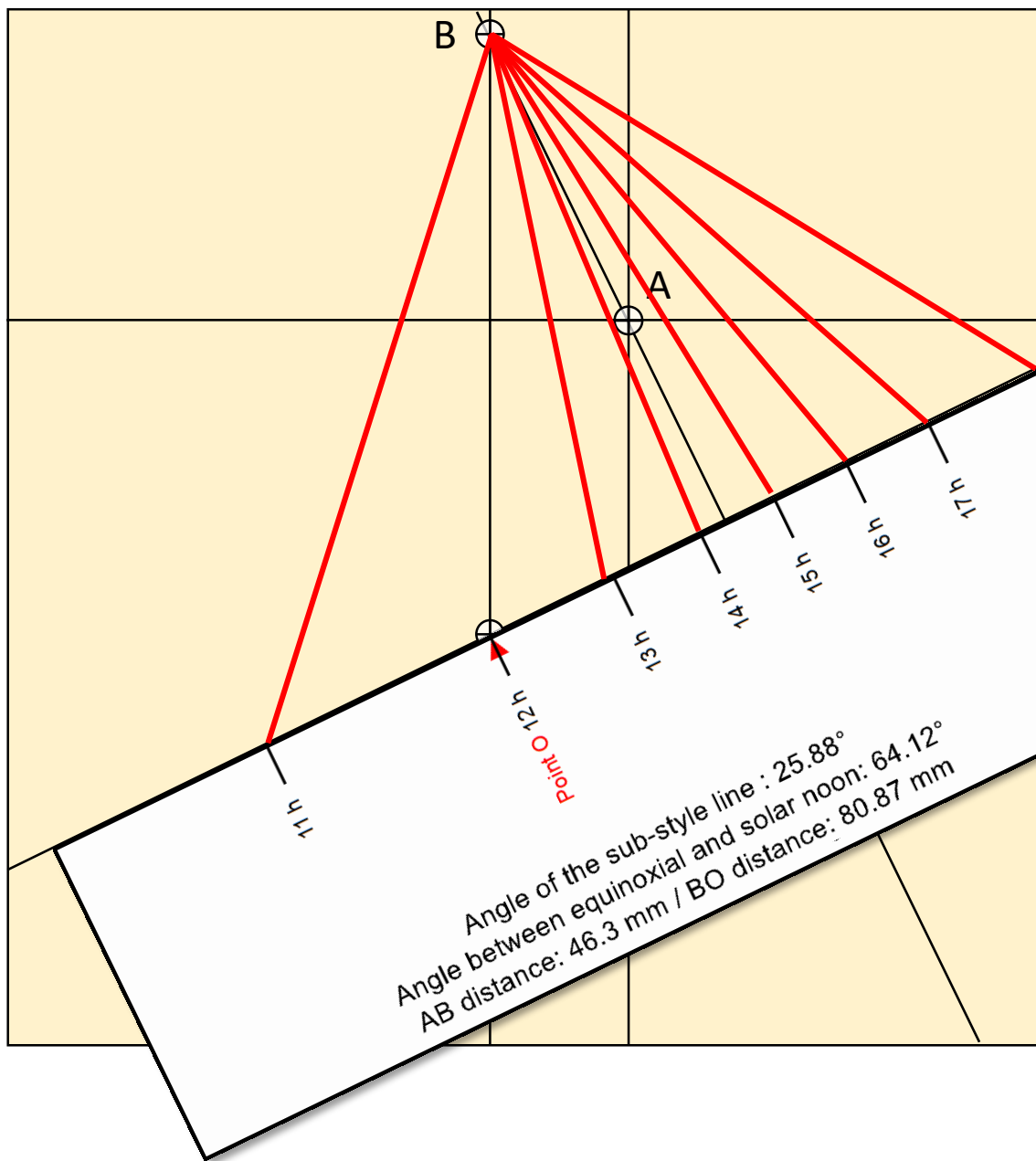
**Step 6.** Mark point O by measuring the distance B-O given on the equinoctial ruler. Point O corresponds to the intersection between the equinoctial line and the solar noon line.

Here:  $B-O = 87 \text{ cm}$



**Step 7.** Draw the equinoctial line from O using the equinoctial angle given on the ruler.

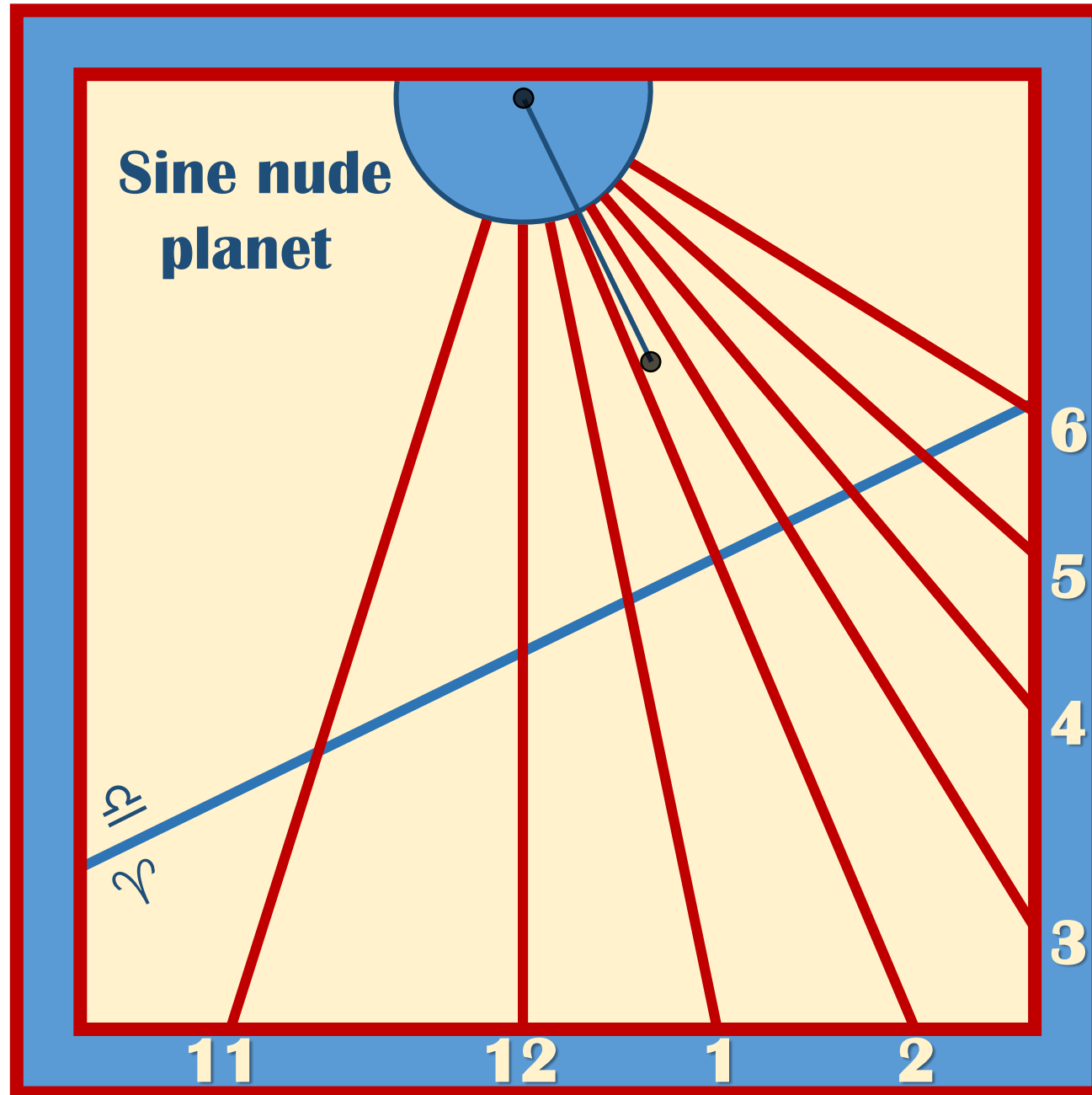
Here: 64,1°  
(measured from the vertical)



**Step 8.** Print the equinoctial ruler on strong paper and cut it. Place the ruler along the equinoctial line, and align point O with the vertical line passing through B.

Note: Dimensions given by Shadows are to be multiplied by 10 to convert mm, i.e. to pass from the mock-up at scale 1/10 to the sundial at scale 1.

**Step 9.** Draw hour lines by joining point B to each mark on the ruler.



**Step 10.** Extend hour lines to the edges, then decorate the sundial and remove intermediate lines.

Your sundial is now finished.