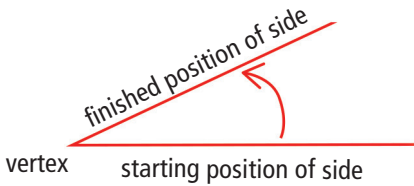


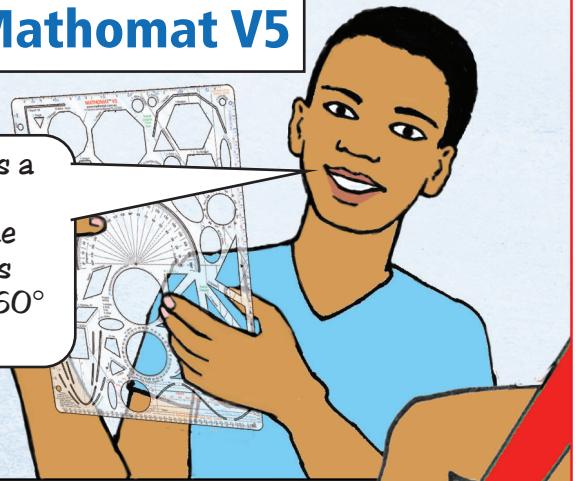
How to measure an angle using a 180° protractor

Use with Mathomat V5

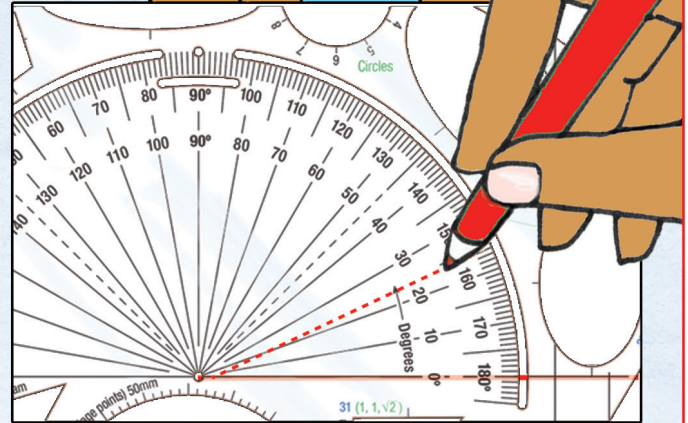
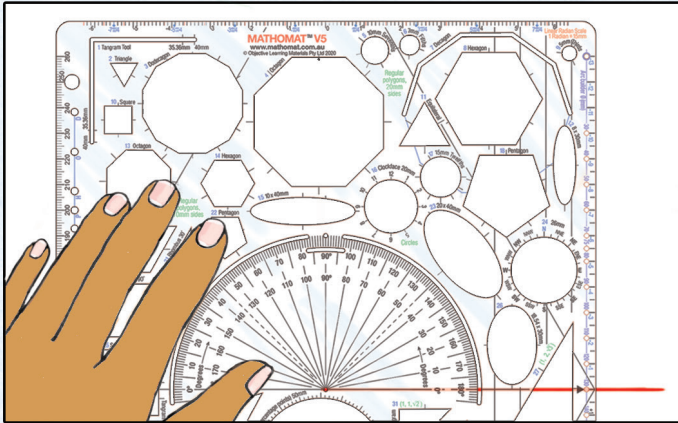
Anti-clockwise measurement



The Mathomat V5 has a 180° protractor. The method of locating the base line and vertex is the same as with a 360° protractor.



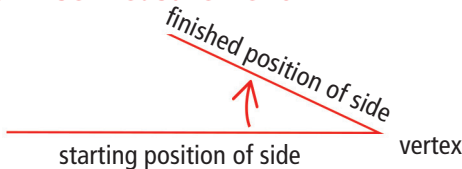
Step 1: Position central location hole of the protractor directly above the angle **vertex**.



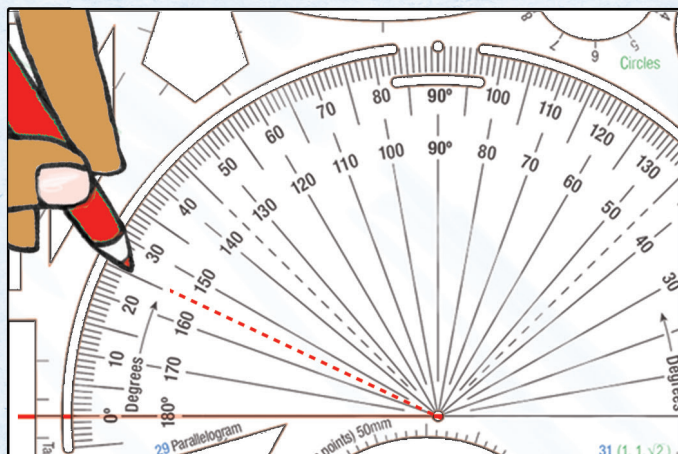
Step 2: Then position the right side of the protractor base line directly over the angle's **starting position side**.

Step 3: Measure the angle in degrees using the **inner degree scale** on your protractor.

Clockwise measurement

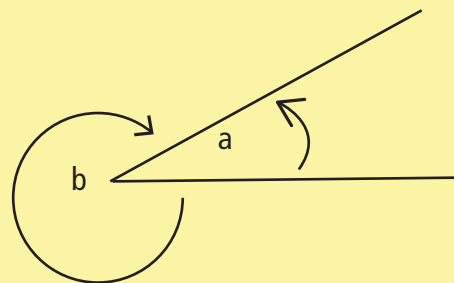


Step 1. Position the left hand side of the protractor base line directly over the angle's **starting position side**.



Step 2 : With the vertex at the central location hole, measure the angle using the **outer degree scale** on the protractor.

Measuring a reflex angle (over 180°) using a half circle protractor



Measure magnitude of angle **a**, then deduct it from 360° to find magnitude of angle **b**.

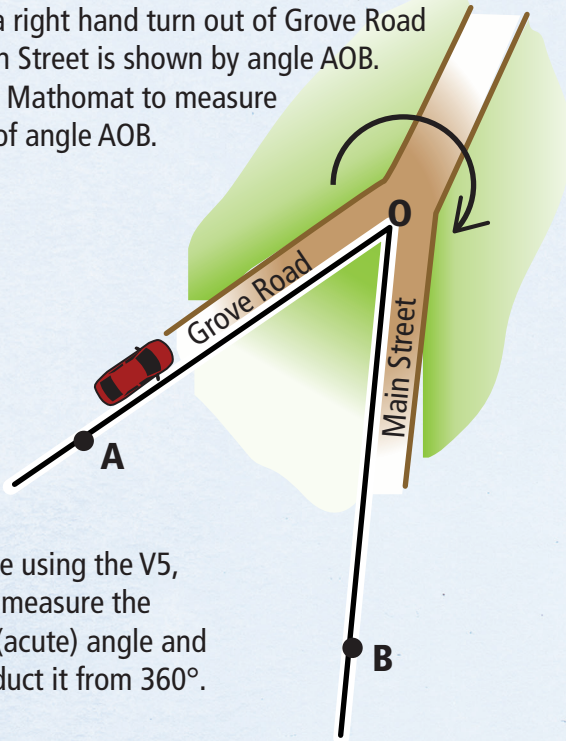


$$\begin{aligned} \angle a &= \dots\dots^\circ \\ 360^\circ - a &= \dots\dots\dots^\circ \\ &= \angle b \end{aligned}$$

Skills sharpener activity 2: protractor practice

1. Sharp turn

The angle that cars have to turn through when making a right hand turn out of Grove Road into Main Street is shown by angle AOB. Use your Mathomat to measure the size of angle AOB.

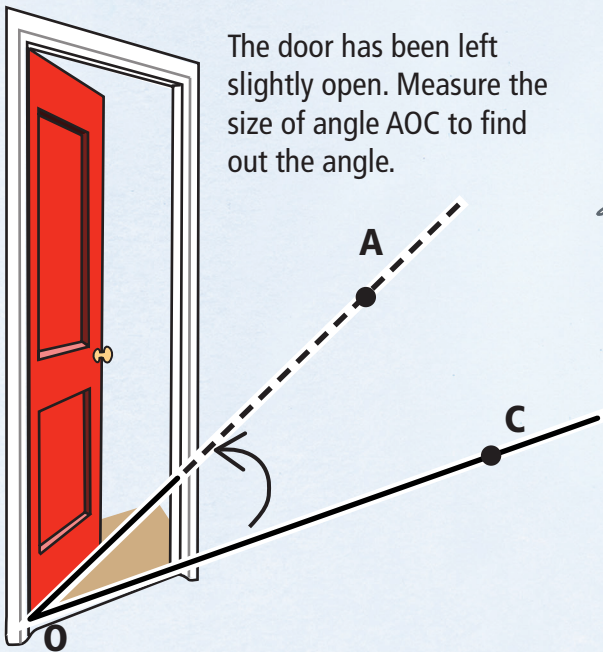


If you are using the V5, you can measure the smaller (acute) angle and then deduct it from 360° .

1. Estimate is approximately equal to
Measured with protractor, is equal to

3. Door ajar

The door has been left slightly open. Measure the size of angle AOC to find out the angle.

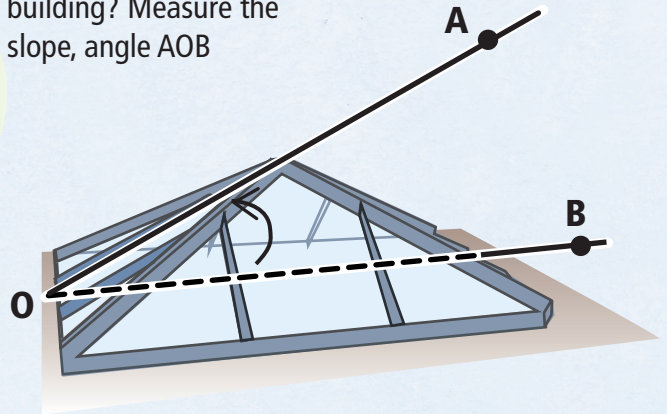


3. Estimate is approximately equal to
Measured with protractor, is equal to

2. Roof top

Measure these angles with Mathomat.

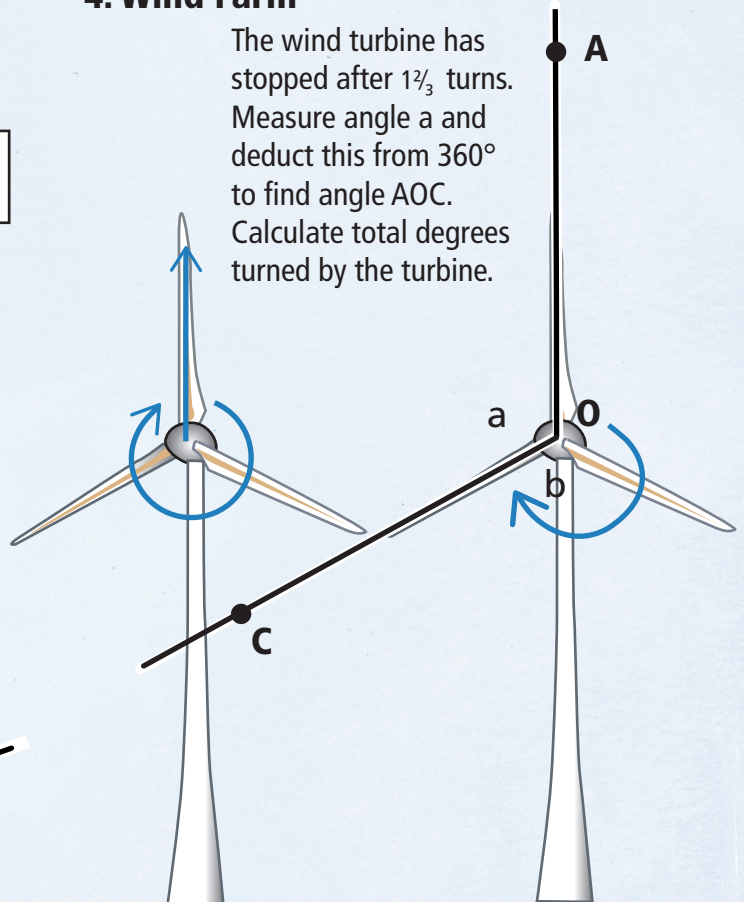
What is the angle of the sun roof on this building? Measure the slope, angle AOB



2. Estimate is approximately equal to
Measured with protractor, is equal to

4. Wind Farm

The wind turbine has stopped after $1\frac{2}{3}$ turns. Measure angle a and deduct this from 360° to find angle AOC. Calculate total degrees turned by the turbine.



Total degrees turned: $360^\circ + \dots^\circ$
Revolutions: $1 + \frac{2}{3}$

4. $360^\circ + \dots^\circ$ (size of b) =
(remember to estimate first)

Answers: $1.310^\circ, 2.25^\circ, 3.25^\circ, 4.600^\circ$