

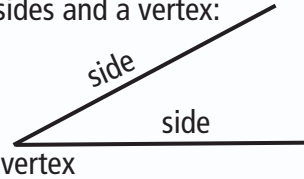
Angle drawing and measurement summary: doing the Mathomat protractor one-step



START →

KNOW YOUR ANGLE

Every angle has two sides and a vertex:



The size of an angle is the amount of openness between its sides.

GET YOUR ANGLE TOGETHER

Are all parts of my angle visible?

You must know where all parts of your angle are before you can draw or measure it.

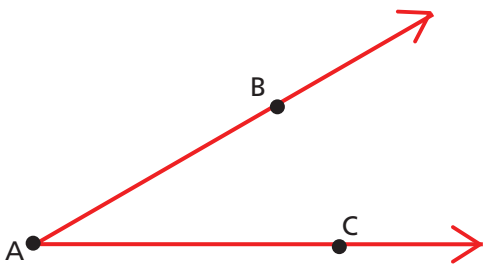


NO

YES

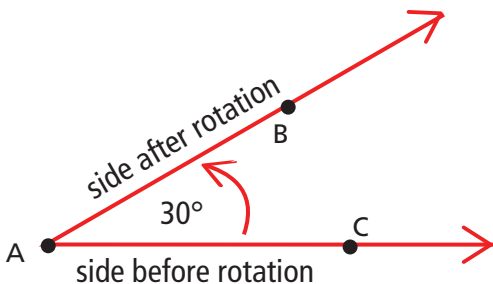
MATHEMATISE YOUR ANGLE

In mathematics we can represent any angle using two rays that have a common end point.



We called this angle $LBAC$. L is the symbol for angle. The two rays of the angle are sides. B and C are points on the sides (they could be any points) and can be listed in any order, although we put A in the middle to show it is the vertex. Often we leave the arrows off but we still mean sides of infinite length.

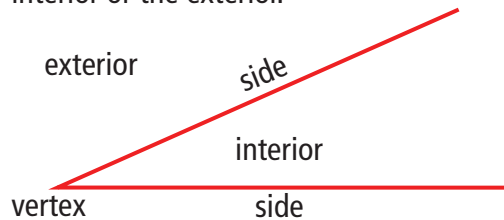
Directed angles



To show a rotation we name the start and finish side, the direction and amount of turn (in degrees in this case).

LEARN THE LINGO

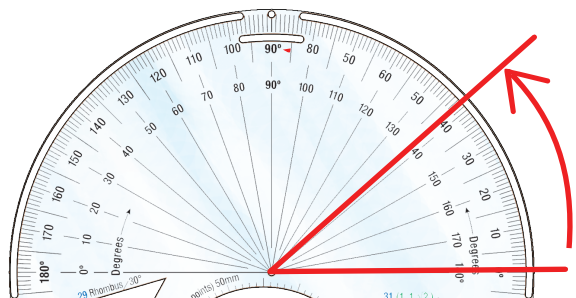
An angle can be called a corner (think of the corner of a table top). We mean just the sides and the vertex when we say angle, not the interior or the exterior.



The angle vertex can be a point (for a corner), a pivot (joining a pair of scissors), or a hinge (in a door).

The angle opening could be an amount of turn between sides, or a 'gap' left by the turn.

PICK A DIRECTION



Angle is usually measured in an anti-clockwise direction.

I can find all parts of this angle.

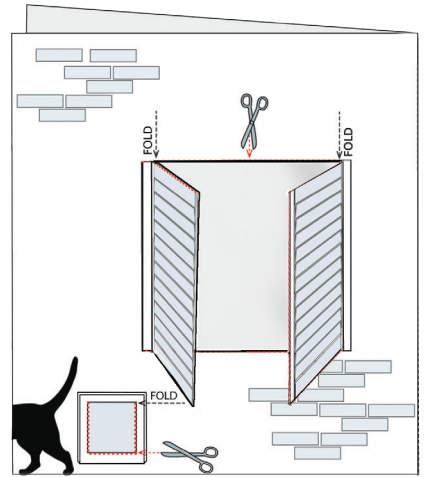
vertex
two sides

The opening is a right angle.

Angle drawing tips

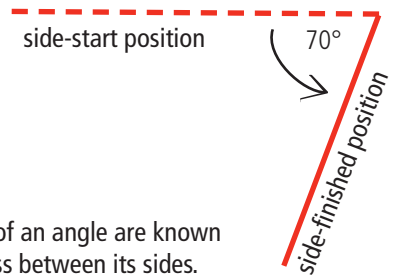
In real-life, angles are often difficult to see properly. To be able to draw, or measure them, you must imagine or remember the parts you can't see properly.

Print out a doors card from the Mathomat site, fold it and cut out the two shutter doors. Hold them open at 70° (two and one third windmill angles) then draw the angle of opening in the space below. Remember the start position of the angle side; draw it using a dashed line.



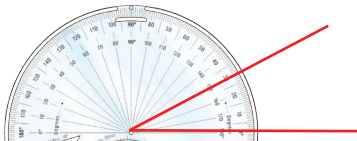
Draw angle of opening for left hand shutter here:

Angle of opening for right hand shutter:

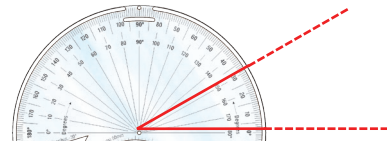


Once the two sides and the vertex of an angle are known you can see the amount of openness between its sides.

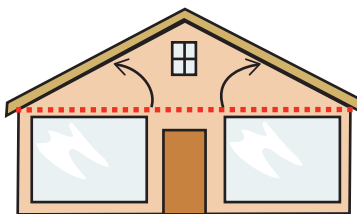
Draw sides of your angle long so they can easily be read on the protractor. Mathomat protractors will read sides greater than 40 mm long.



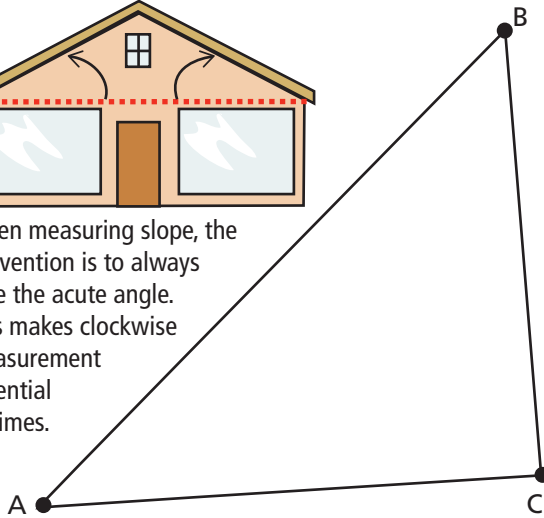
If your angle sides are short you will need to imagine extending them when measuring.



BUT SOMETIMES WE GO CLOCKWISE



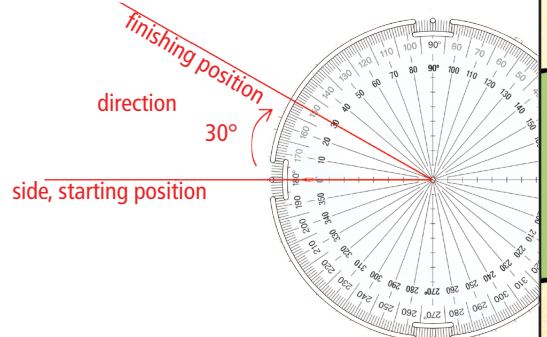
When measuring slope, the convention is to always take the acute angle. This makes clockwise measurement essential at times.



Sometimes clockwise is a more convenient direction. Measure all angles of triangle ABC to see why.

DOING THE PROTRACTOR ONE-STEP

Once you know where each side of your angle is and your measurement direction, you have a plan. You can pick up your Mathomat protractor and decide how you are going to use it in a single step.



Step one and only. Choose which side of the base line to place the protractor and which degree scale to use (outer or inner). Then draw or measure your angle.