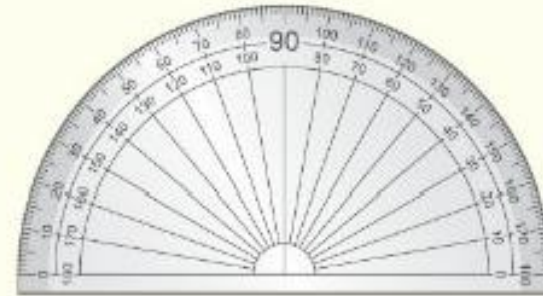
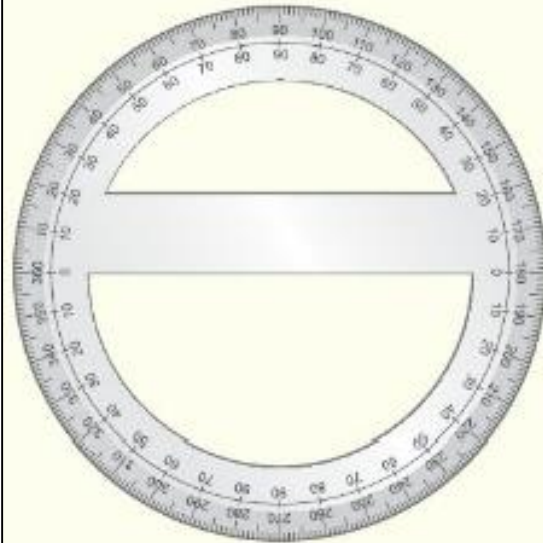


# Geometry Equipment

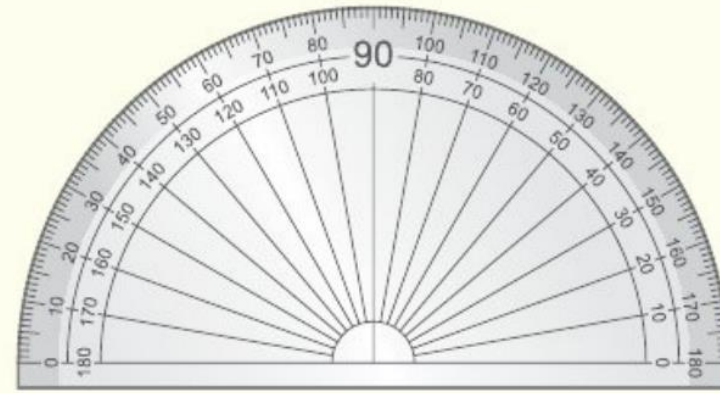
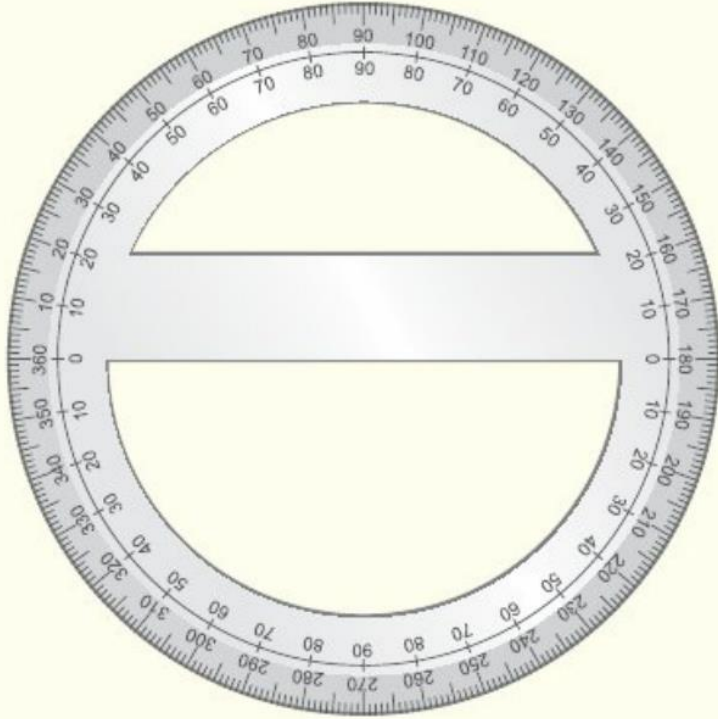
## Protractor

We use an instrument called a **protractor** to measure an angle or to draw an angle of a specific size. A protractor comes as either a full circle ( $0^\circ$  to  $360^\circ$ ) or more commonly as a semicircle ( $0^\circ$  to  $180^\circ$ ).



A protractor has two **scales**. It can be used to read angles of any size in a clockwise and in an anticlockwise direction.

We use an instrument called a **protractor** to measure an angle or to draw an angle of a specific size. A protractor comes as either a full circle ( $0^\circ$  to  $360^\circ$ ) or more commonly as a semicircle ( $0^\circ$  to  $180^\circ$ ).



A protractor has two **scales**. It can be used to read angles of any size in a clockwise and in an anticlockwise direction.

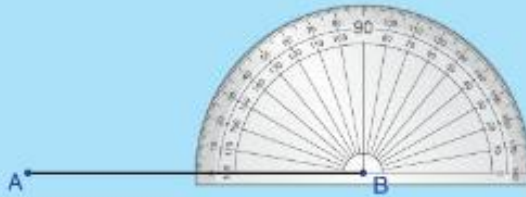
### To draw an angle with a protractor

Use the following steps to draw the  $\angle ABC$  where  $\angle ABC = 40^\circ$ .

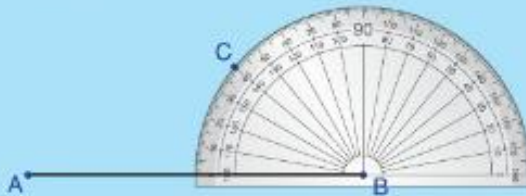
- **Step 1:** Draw a line segment and clearly mark the endpoints.



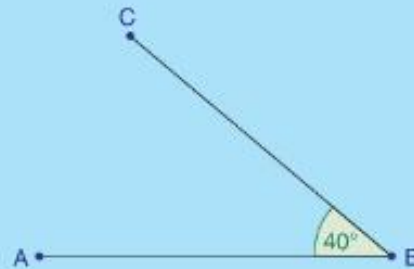
- **Step 2:** Place the baseline of the protractor on the line segment and place the centre point of the protractor on the point B.



- **Step 3:** Using the scale on the protractor that shows the baseline reading as  $0^\circ$ , mark the angle you are looking for.

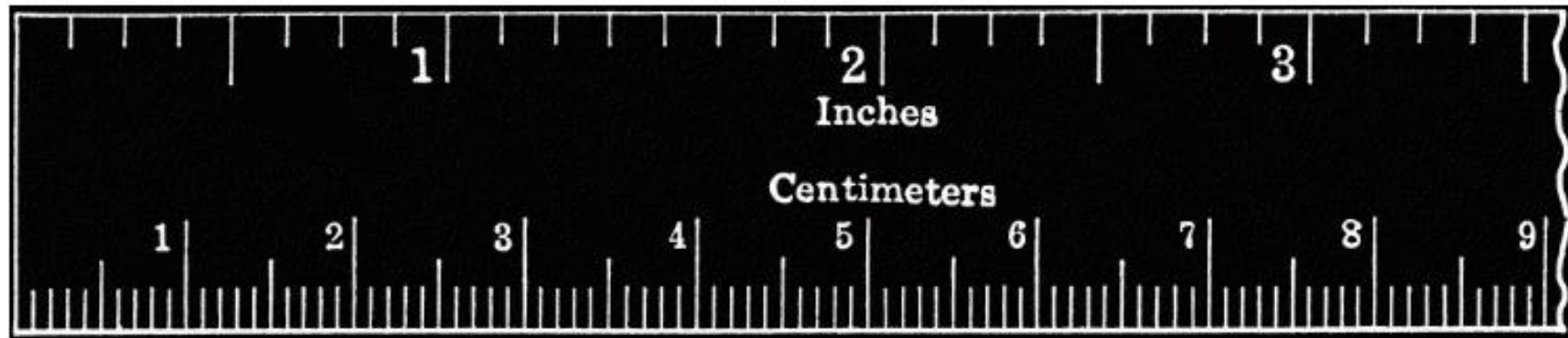


- **Step 4:** Remove the protractor, join point B to point C and write in the measurement of the angle.



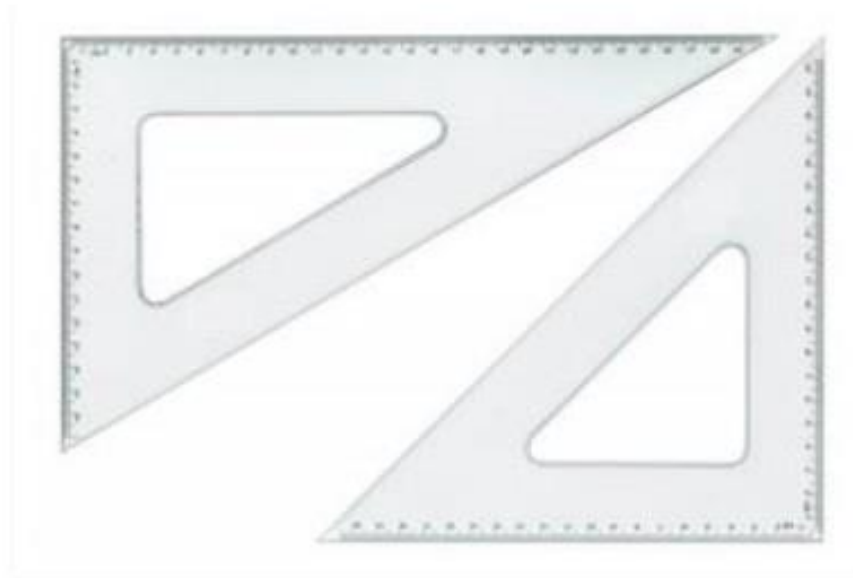
# Ruler

Also known as the straightedge, a ruler is used to construct straight lines and measure the lengths of a line segment. It is a straight edge originally used only for drawing straight lines. However, for our convenience, it is graduated into centimetres and millimetres on one side, and into inches on the other.

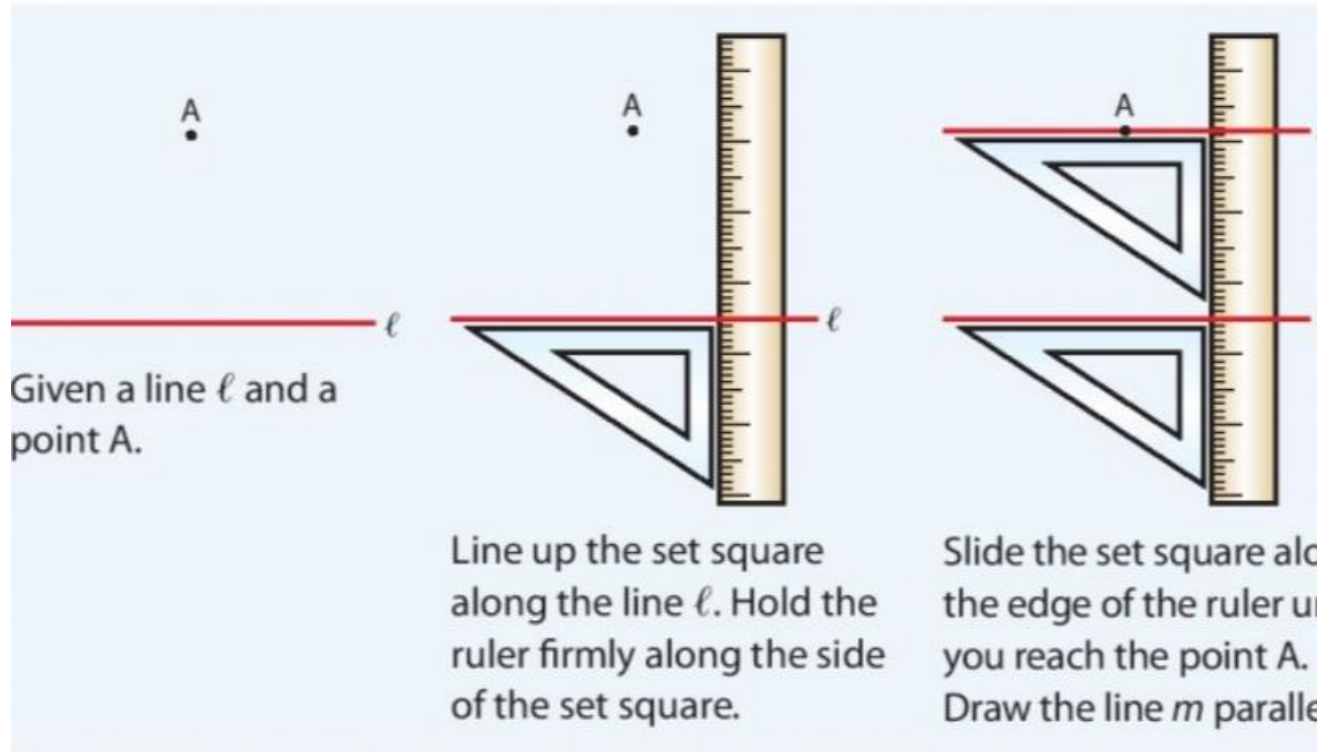


# Set Squares

These are the triangular pieces of plastic with some portion between them removed. There are two kinds of set squares available in the market. One has the angles 45, 45 and 90 degrees at the 3 vertices while the other has 30, 60 and 90-degree angles. They are used to draw parallel and perpendicular lines.



# Drawing Parallel lines

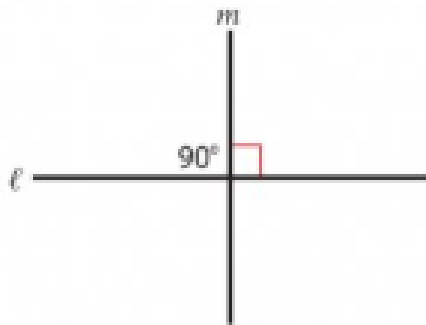


We use a ruler and a set square to draw a line parallel to a given line.

The diagrams show the steps to be followed


# Drawing Perpendicular Lines

**Perpendicular line** - lines that intersect to form right angles. Lines  $l$  and  $m$  are perpendicular lines.



To draw a perpendicular line through a given point:

Given the line segment  $[AB]$  and a point  $P$ .



Place a ruler along  $AB$ . Place one side of the set square on the ruler, as shown. Move the set square until it reaches the point  $P$ . Draw a line  $l$  through  $P$ .

The line  $l$  is perpendicular to  $[AB]$  and it contains the point  $P$ .

The diagram illustrates the process of drawing a perpendicular line through a given point  $P$ . It shows a line segment  $AB$  and a point  $P$ . A ruler is placed along  $AB$ , and a set square is used to draw a line  $l$  through  $P$  perpendicular to  $AB$ . The final result shows the line  $l$  perpendicular to  $AB$  at point  $P$ .