

Dimensioning

BSI—British Standards Institute

Dimensions should be drawn according to the rules set out by the British Standards Institute. If you do not follow the rules given by the BSI, the SQA will not award the relevant marks for dimensioning or standards.

When doing CAD drawings, you will need to set your master page to use dimensions in the format required.



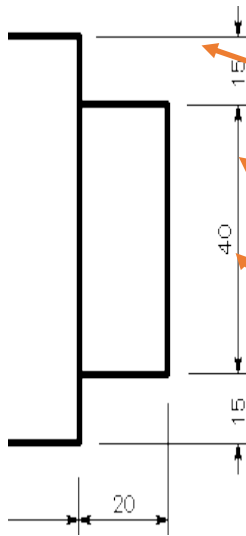
Dimensions

A basic dimension line is there to indicate the size of part of a drawing. It is made up of three parts:

Leader Lines—these are thin lines that lead from points on a view to the arrowhead of the dimension line. There should be a small gap to separate the end of the leader line from the actual view to help avoid confusion.

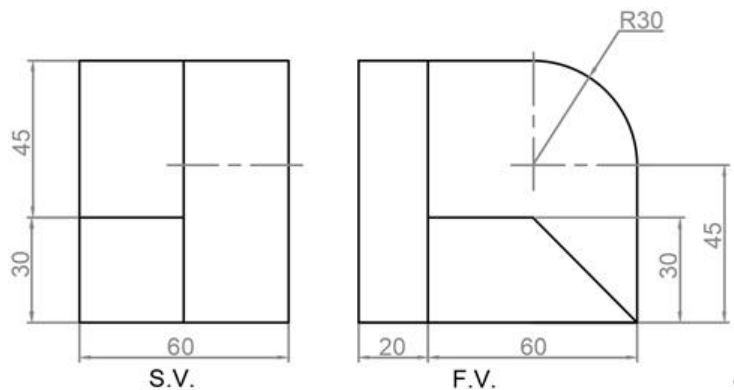
Dimension Line—this is a light line which indicates where the dimension refers to. The end of the dimension line (in linear dimensions) have solid-fill narrow arrows on them (not open arrows or unfilled triangles).

Dimension—a number (normally in millimetres) indicating the real size (not necessarily the scaled size on the paper). No units should be include.



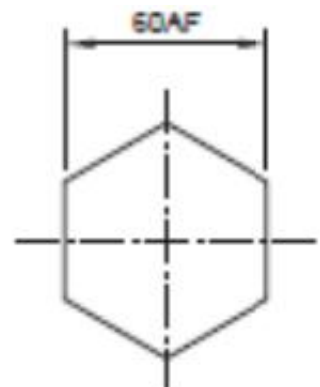
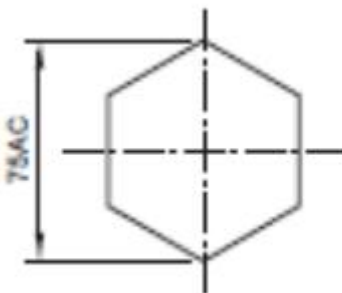
Linear Dimensions

There is a rule that says all dimensions should either be written above a horizontal dimension line or to the left of a vertical dimension line. The number should be written as though the dimension line underlines the number.



Hexagons

When indicating the size of a Hexagon (or rarely, an Octagon) dimension can have either AF or AC added to them. This refers to whether the dimension is Across the Flats (AF) or Across the Corners (AC).



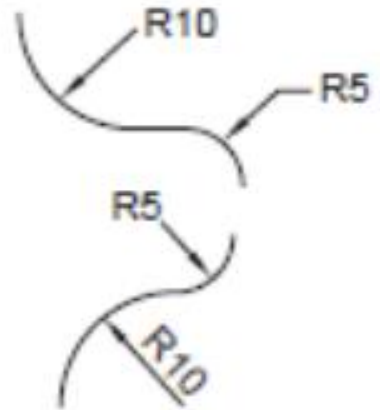
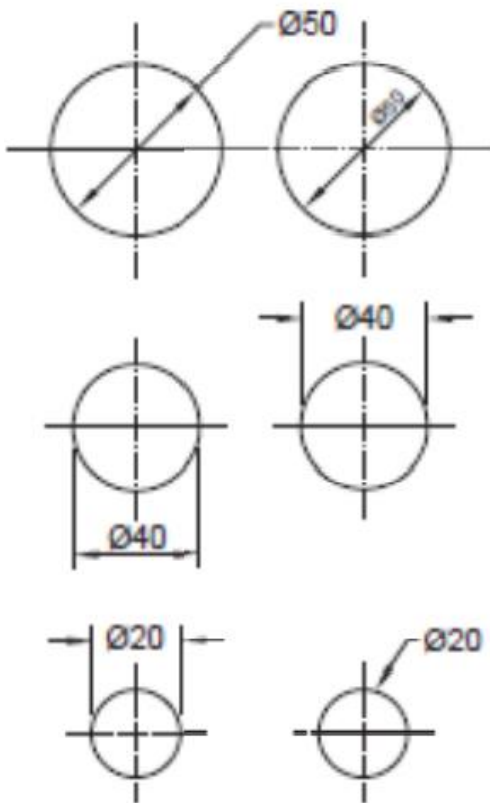
Dimensioning

Radii and Diameters

When dimensioning a radius (used for **part of a circle**) and a circle there are special symbols added, and the dimension line only has one arrow, pointing to the curve. There are a variety of acceptable methods of dimensioning curves and circles, some of which are shown here.

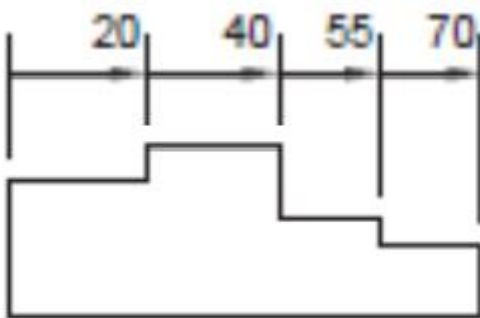
Use a capital R for dimensions of radii and arcs.

Use \emptyset to indicate Diameter



Squares

Sometimes a square can be dimensioned as shown. This would confirm that it was a square. This reduces the number of dimensions required and can make the drawing easier to read.

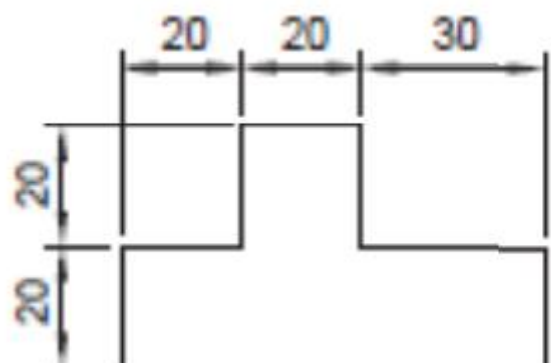


Running Dimensions

If sizes are going to be measured from a **Datum**, then Running Dimensions are used. These only have one arrow, and the dimension number is written off-centre.

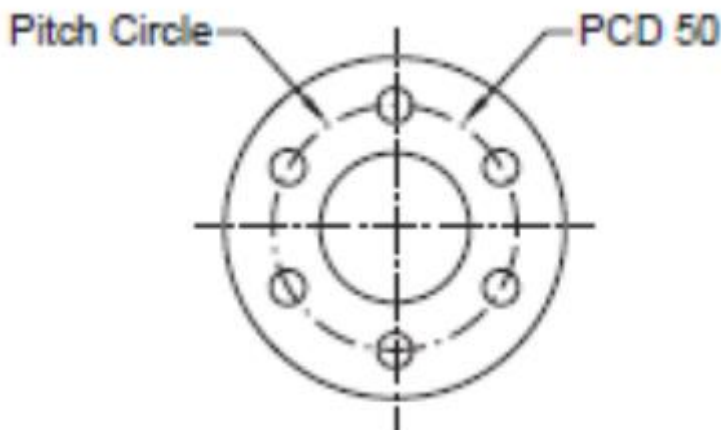
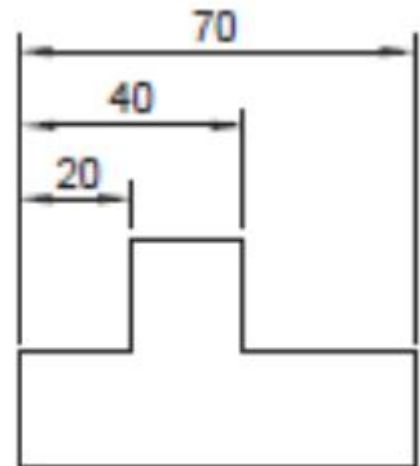
Chain Dimensions

If a dimension is measured from the previous dimension, then this is called Chain Dimensioning.



Dimensioning**Parallel Dimensioning**

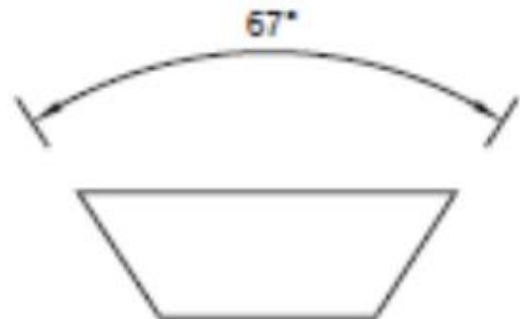
Parallel Dimensioning is where the dimension lines are parallel with each other. The rule is that smaller dimensions are located closest to the object, with larger dimensions farther away.

**Pitch Circle Diameter**

If a series of circles are position around a centre as shown, the Pitch Circle Diameter (PCD) can be given. This would refer to the size of the diameter of the circle that the centres of the small circles are located on.

Angular Dimensions

Angular dimensions are drawn in a similar fashion to linear dimensions, apart from the fact that the dimension line is shown as an arc within the angle. The degree symbol would be used to indicate the angle is measured in degrees.

**Examinations**

In an exam, you could be asked to identify the dimension style (eg Parallel), explain what initials mean (eg PCD) or, more commonly, identify the dimensions that are not drawn to British Standards.

Assignments

In an assignment, you will be required to add dimensions to CAD drawings (though not usually Assembled Orthographic drawings, Pictorial (eg Isometric) or Sectional drawings. These would need to be drawn to British Standards. Although there is no British Standard for sketched dimensions, the SQA is expecting you to use it, as it shows your knowledge of the conventions.