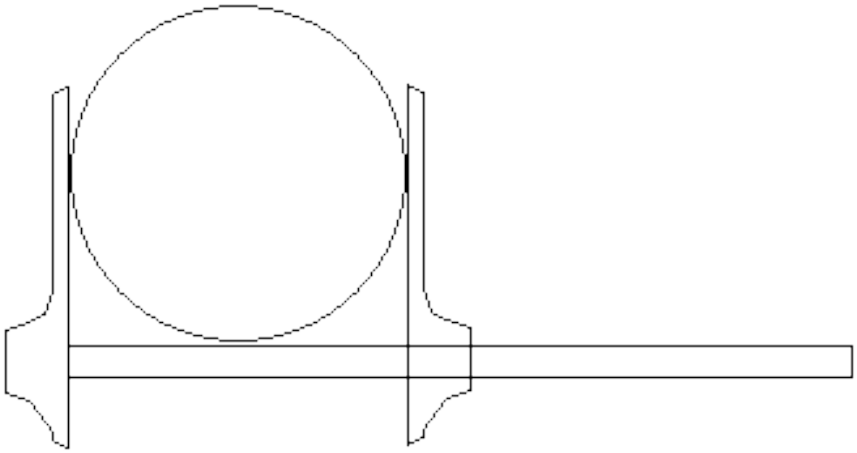
Diameter Measurement

Diameter is the most common tree measurement mainly because it is the easiest measurement to collect. Diameter can be collected at any point on the stem, but there are some common points where diameter is taken. These include stump height, breast height, some percentage of tree height, and crown base. Of these diameter at breast height (DBH) is the most common. In English units breast height is 4.5 feet. In metric units breast height is 1.3 meters. Note that these are not the same point as 4.5 = 1.37m. Let us consider some common methods of measuring DBH.

Diameter calipers

Diameter calipers are among the simplest diameter measurement tools. It is a ruler with arms that can be set on either side of the tree and the diameter is read on the scale. If the tree is eccentric more than one measurement must be taken and then averaged to get an accurate diameter measurement.



Diameter Tape

Diameter tapes are the most common diameter measurement tool. It is a flexible tape which is used to measure circumference, but reads in units of diameter

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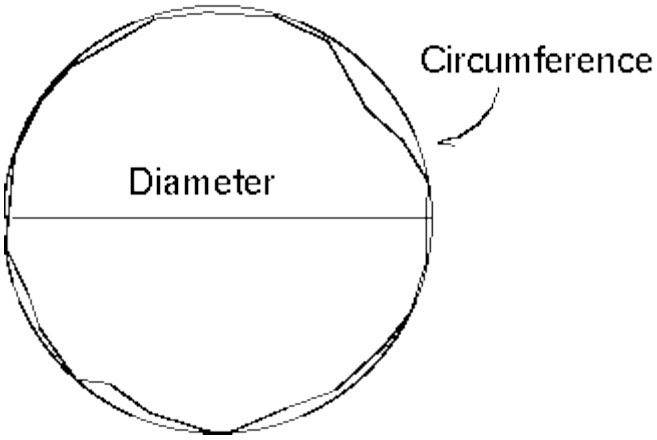
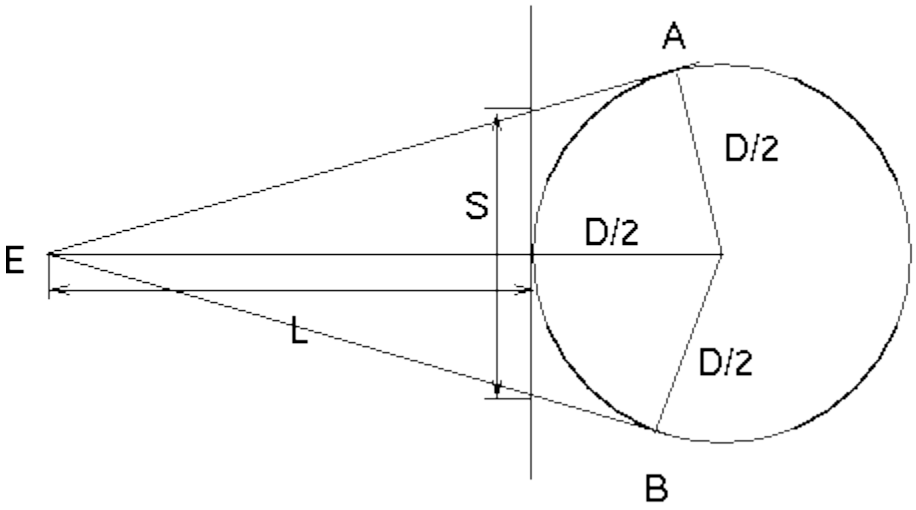


This conversion is accomplished by dividing the circumference by *PI* (3.1415).

$$D = \frac{C}{\pi}$$

Biltmore Stick

A Biltmore stick is a simple device to measure diameters to the nearest inch class. Its key advantage is that it is fast and simple to use. Biltmore stick is calibrated to read the angles as in the following figure.



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where E is your eye, L is usually 25 inches, S is the tangent to the observed arc AB. Using the following formula you can make a Biltmore stick anywhere and for any L distance.

$$S = \sqrt{\frac{D^2 L}{L + D}}$$

Also see:

Husch, B., T. W. Beers and J. A. Kershaw. 2003. Forest Mensuration. Fourth Edition. John Wiley and Sons 443 p.

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