

the tracer  $B = a^2 + b^2 - 2bd$ .  $\therefore$  the area of the curve which  $B$  traces  $= bcn + \text{area of circle described by the tracer when the planimeter is in the position just indicated.}$  This circle is called the datum circle. (In describing this circle the wheel would slide and not revolve, and hence  $n$  would be 0)

Let it be required to find  $b$  so that the area may be found in square centimetres by multiplying  $n$  by 100.

We have  $bcn = \text{area} = 100n$

$$\therefore bc = 100$$

$$\text{or, } b = \frac{100}{c} \text{ centimetres,}$$

where  $c$  is the circumference of the wheel in cm.

Similarly  $b = \frac{10}{c} \text{ inches}$

if  $c$  = the circumference in inches, and the area is to be found in square inches by multiplying  $n$  by 10.

In general, if the area =  $n$ ,  $bc$  is the unit area.