DERIVATION OF CENTROID OF A RECTANGLE

Let us consider a rectangular lamina of area b*d as shown in the figure. Now consider a horizontal elementary strip of area b*dy , which is at a distance y from the reference axis AB.

Moment of area of elementary strip about AB

$=b*dy*y$

Sum of moments of such elementary strips about AB is given by

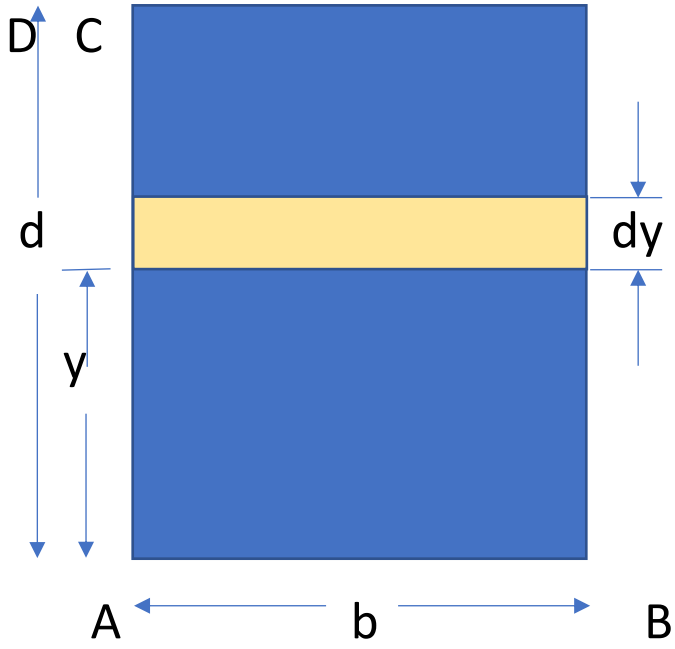
$^{d}_{0}\int b*dy*y$

$=b\,^{d}_{0}\int y.dy$

$=b*[y^2/2]\,^{d}_{0}$

$=bd^2/2$

Moment of total area about AB$=bd*\bar{y}$



Applying the principle of moments about AB,

$bd^2/2=bd*y$

Or $\bar{y}$**=d/2**

By considering a vertical strip, similarly, we can prove that ,$\bar{x}$ **=b/2**