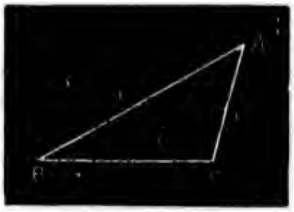
Of a triangular area. which bisects it. Hence the centre of gravity of a triangular area is the intersection of lines drawn from the angles to bisect the opposite sides, and this intersection is at a distance from the angle of two-thirds of the bisecter drawn from it.



For let $A B C$ be the triangle, and $B D$, $C E$ bisect $A C$, $A B$, and meet in G. Then G is the centre of gravity.

Join $E D$, which is parallel to $B C$ (Eucl. B. VI. 2),

$$\text{Then } \frac{BG}{GD} = \frac{BC}{ED}, \text{ by similar triangles } BGC,\ EGD$$

$$= \frac{CA}{AD}, \text{ by similar triangles } ACB,\ ADE$$

$$= \frac{2}{1}.$$

Hence $B G$, being double of $G D$, is $\frac{2}{3} BD$.

The same point G is also the centre of gravity of three equal bodies placed at the points A, B, C.

Of any polygonal area. Cor. In this way can the centre of gravity of any polygonal area be found; for, dividing the figure into triangles, the weight of each of these may be supposed collected at its own centre of gravity, and the centre of gravity of the whole figure will be that of these weights, considered as heavy particles situated in those points.

The method of finding this latter will be treated in the following article.

Of any heavy particles in one plane. 52. *To find the centre of gravity of a system of particles all in one plane.*

Let Ox, Oy be two perpendicular lines in this plane, with regard to which the positions of the particles are known.

Let P be the place of one of the particles, w its weight.