

1117-52-283

Luis Montejano*, National University of Mexico at Quertaro, Juriquilla, 76230 Queretaro, Juriquilla, Mexico. *Constant width, constant minimum width and reduced convex bodies.*

In the literature of convex bodies there are three close related notions: constant width body, constant minimum width body and reduced body. We shall prove that for strictly convex body the notions of constant minimum width body and reduced body coincide. In fact, we shall see that the three notions coincide for smooth convex bodies, almost spherical convex bodies or strictly convex bodies with only regular or vertex points at it boundary.

For strictly convex plane figures the three notions coincide, while in general, every constant width figure is a reduced figure which has constant minimum width. The triangle is reduced but has not constant width and the square has constant minimum width but is not reduced.

We shall also prove that for dimension greater than 2 and diameter h , a convex body which either has constant width h , constant minimum width h or is reduced can not be h -spherical convex and consequently that a body of constant width h , of constant minimum width h or reduced is not the intersection of finitely many solid spheres of radius h .

Finally, will be discuss how to construct constant width bodies in higher dimensions. (Received January 16, 2016)