

Curvature of convex bodies

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We will consider convex surfaces, i.e. surfaces which are the boundary of a convex set in \mathbb{R}^3 . First, we will recall the classical notion of Gaussian curvature of a smooth surface and some well-known result involving it. As we will see, analogous notion and properties can be introduced for polyhedral surfaces. We will discuss then how to extend the theory of Gaussian curvature to more general convex surfaces, which are possibly neither smooth nor polyhedral. In particular we will state a celebrated result proved by Alexandrov in the 40's according to which the class of positively curved surfaces essentially coincide with the class of boundaries of convex sets in \mathbb{R}^3 . Time permitting, we will sketch briefly how to generalize this theory to convex sets in the hyperbolic space.

Keywords:

**convex surfaces • Gaussian curvature •
Alexandrov's Realization Theorem**

"Obvious" is the most dangerous word in mathematics.
- Eric Temple Bell