Scalar Product

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1 A definition

We begin by an undergraduate definition of the scalar product. We want to compute the scalar product of two vectors u and v denoted by $u.v$. A scalar product is a product so it has the following properties as a product of two numbers. $u.(v+w) = u.v + u.w$ and also $(u+v).w$ for three vectors u, v and w. For the moment, we keep in mind the usual collegian notion of vectors. A (planar) vector is a couple of two (real) numbers, whose set is designed by $\mathbb{R}^2$. We usually denote a couple of two numbers by (u_1, u_2).