



### Definition

The *complex inner product* (or *dot product*, *scalar product*) of two complex vectors  $x, y \in \mathbf{C}^n$  is

$$x_1y_1 + x_2y_2 + \cdots + x_ny_n$$

We denote the inner product of  $x$  and  $y$  by  $\langle x, y \rangle$ .

An *inner product space* is tuple whose first object is a vector space over the real or complex numbers and whose second object is a conforming inner product.

### Other terminology

Some older authors use the term *pre-Hilbert space*.



