

1 | Cauchy-Schwarz Inequality important

'One of the most important inequalities in mathematics'

Suppose $u, v \in V$ (where V is an inner product space). Then

$$|\langle u, v \rangle| \leq \|u\| \|v\|$$

The inequality is an equality iff one of u, v is a scalar multiple of the other.

1.1 | proof is by the orthogonal decomposition