

## 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.