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0.1 Angles

0.1.1 Recap: Cauchy-Schwarz inequality

This states that:

$$|\langle u, v \rangle|^2 \leq \langle u, u \rangle \langle v, v \rangle$$

Or:

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

0.1.2 Introduction

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

$$\frac{\langle v, u \rangle \langle u, v \rangle}{||u|| \cdot ||v||} \leq ||u|| \cdot ||v||$$

$$\frac{||u|| \cdot ||v||}{\langle v, u \rangle} \geq \frac{\langle u, v \rangle}{||u|| \cdot ||v||}$$

$$\cos(\theta) = \frac{\langle u, v \rangle}{||u|| \cdot ||v||}$$