


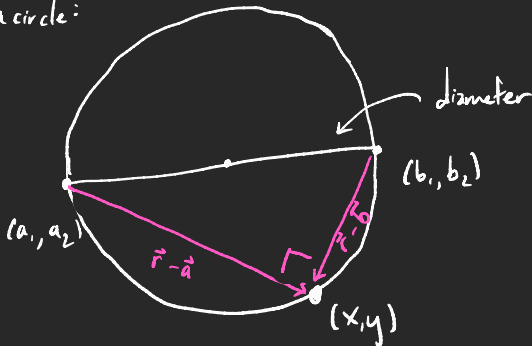


CONCEPTUAL

① Largest: b when 
Smallest: $-b$ when 

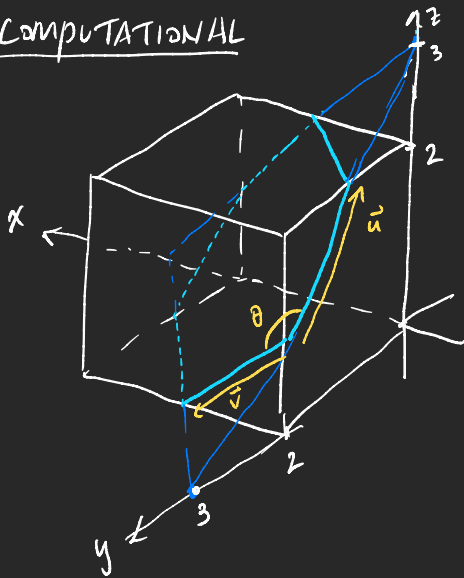
Also: 0 when 

② It's a circle:



③ θ is between 0 and π .
So it can be recovered from $\cos \theta$, but not from $\sin \theta$, since $\sin \theta$ is not one-to-one on that interval.

COMPUTATIONAL



I'll just check the marked angle as an example:

$$\vec{u} = \langle 0, 1, 2 \rangle - \langle 0, 2, 1 \rangle = \langle 0, -1, 1 \rangle$$

$$\vec{v} = \langle 1, 2, 0 \rangle - \langle 0, 2, 1 \rangle = \langle 1, 0, -1 \rangle$$

$$|\vec{u}| = |\vec{v}| = \sqrt{2}. \quad \leftarrow \text{side length of hexagon}$$

$$\vec{u} \cdot \vec{v} = -1. \quad \cos \theta = \frac{-1}{2}$$

$$\text{so } \theta = \frac{2\pi}{3} \quad (120^\circ).$$

\nwarrow interior angles.