

$$\begin{aligned} |\mathbf{a}| &= \sqrt{2^2 + 0^2 + 4^2} = \sqrt{20}, \quad |\mathbf{b}| = \sqrt{2^2 + (-1)^2 + 0^2} = \sqrt{5}, \quad \text{and} \\ \mathbf{a} \cdot \mathbf{b} &= (2)(2) + (0)(-1) + (4)(0) = 4. \quad \text{Then } \cos \theta = \frac{\mathbf{a} \cdot \mathbf{b}}{|\mathbf{a}| |\mathbf{b}|} = \frac{4}{\sqrt{20} \cdot \sqrt{5}} \\ &= \frac{2}{5} \quad \text{and } \theta = \arccos\left(\frac{2}{5}\right) \approx 66^\circ. \end{aligned}$$