

Interlude 1: Exercise 6

Explanation

This is another test of the ability to apply a definition to evaluate a situation. Rather than a practical calculation, this is a more theoretical problem. The determination of why something mathematical is true.

Hint

Recall the definitions of orthogonality and the dot product.

Answer

Recall that the definition of a dot product is:

$$\vec{A} \cdot \vec{B} = \left| \vec{A} \right| \left| \vec{B} \right| \cos \theta.$$

If two vectors are orthogonal, then $\theta = \pi/2$ and $\cos \theta = 0$, thus $\vec{A} \cdot \vec{B} = 0$.