Let the vectors be $\mathbf{a}$ and $\mathbf{b}$. Then by Theorem 3,

$$\mathbf{a} \cdot \mathbf{b} = |\mathbf{a}| \, |\mathbf{b}| \cos \theta = (4)\left(\tfrac{1}{2}\right) \cos \tfrac{\pi}{4} = \frac{4}{2\sqrt{2}} = \sqrt{2} \; .$$