Special Problem 2-4.2

Rewrite the discrete vector **A** in terms of a set of orthonormal base vectors $\hat{b}_1$, $\hat{b}_2$, $\hat{b}_3$; where:

$$\mathbf{A} = 3\,\hat{a}_x + 2\,\hat{a}_y$$

and

$$\hat{a}_x \cdot \hat{b}_1 = \frac{1}{\sqrt{2}} \qquad \hat{a}_x \cdot \hat{b}_2 = 0 \qquad \hat{a}_x \cdot \hat{b}_3 = \frac{1}{\sqrt{2}}$$

$$\hat{b}_1 \cdot \hat{a}_y = \frac{1}{\sqrt{2}} \qquad \hat{b}_2 \cdot \hat{a}_y = 0 \qquad \hat{b}_3 \cdot \hat{a}_y = \frac{-1}{\sqrt{2}}$$