Special Problem 2-4.18

Consider some **unknown** discrete vector $\mathbf{A} = A_x\,\hat{\mathbf{a}}_x + A_y\,\hat{\mathbf{a}}_y + A_z\,\hat{\mathbf{a}}_z$.

Consider also a **known** discrete vector $\mathbf{B} = 2\,\hat{\mathbf{a}}_x$.

We also know that:

$$\mathbf{A} \cdot \mathbf{B} = 6$$

and

$$\mathbf{A} \times \mathbf{B} = -8\,\hat{\mathbf{a}}_z$$

Determine:

1. The **magnitude** of vector **A**.
2. The **direction** of vector **A**.