B.5.9

$$\mathbf{a} = \begin{pmatrix} 1 \\ i \\ 4 \end{pmatrix}, \quad \mathbf{b} = \begin{pmatrix} 2 \\ -1 \\ 2-3i \end{pmatrix}$$

$$(\mathbf{a}, \mathbf{b}) = 1 \cdot 2 + i(-1) + 4 \cdot (2+3i)$$
$$= 10 + 11i$$

$$(\mathbf{b}, \mathbf{a}) = 2 \cdot 1 + (-1)(-i) + (2-3i) \cdot 4$$
$$= 10 - 11i$$

$$|\mathbf{a}| = \sqrt{(\mathbf{a}, \mathbf{a})} = \sqrt{1 \cdot 1 + i(-i) + 4 \cdot 4}$$
$$= \sqrt{1 + 1 + 16}$$
$$= 3\sqrt{2}$$

$$|\mathbf{b}| = \sqrt{(\mathbf{b}, \mathbf{b})} = \sqrt{2 \cdot 2 + (-1)(-1) + (2-3i)(2+3i)}$$
$$= \sqrt{4 + 1 + 13}$$
$$= 3\sqrt{2}$$