

Special Problem 2-3.3

Using your knowledge of vector algebra, show that:

$$|\mathbf{A} + \mathbf{B}|^2 - |\mathbf{B}|^2 = \mathbf{A} \cdot (\mathbf{A} + 2\mathbf{B})$$

is true for all vectors \mathbf{A} and \mathbf{B} .

Give justification for **each line** of your proof.