

MEEG 4703 Quiz #1

1. (10 pts) Describe the two general rules to be observed in writing equations using index notation.
2. (10 pts) Making use of the laws of transformation for Cartesian tensors, prove the orthonormal condition

$$a_{ki} a_{kj} = \delta_{ij}$$

3. (10 pts) Using index notation, prove the identity

$$\nabla \cdot (\mathbf{A} \times \mathbf{B}) + \mathbf{A} \cdot (\nabla \times \mathbf{B}) = \mathbf{B} \cdot (\nabla \times \mathbf{A})$$
