

EN221: HW #2, Due Wednesday, 09/24.

1. Exercise 1.5, Page 47, Chadwick.
2. Problem 1.1.4, Page 9, Ogden. Note: The determinant of an improper orthogonal tensor is -1.
3. Consider the following symmetric matrix, $\mathbf{S}$:

$$\begin{pmatrix} 5 & 0 & 4 \\ 0 & 4 & 0 \\ 4 & 0 & 5 \end{pmatrix} \quad (1)$$

- (a) Show that $\mathbf{S}$ is positive definite. (b) Calculate $\mathbf{A}$, the square root of $\mathbf{S}$ (see Eq. 65 of Chadwick). Verify that $\mathbf{A}^2 = \mathbf{S}$.
4. Problem 1.3.5, Page 25, Ogden. (Note that I_1 , I_2 and I_3 are respectively, the first, second and third invariants of the tensor $\mathbf{T}$)