

CHAPTER 10: ELASTOSTATICS - First Half

Reading:

Sections 10.1 – 10.5 of Blandford and Thorne.

Problems - to be turned in at the beginning of class on Wednesday 10 January

A. Do one of the following:

1. Exercise 10.2, The displacement vectors associated with expansion, rotation and shear; or
2. Exercise 10.6, Elastic force density, AND 10.7 Elastic energy density.

B. If you have never before worked with connection coefficients, then:

1. Do Exercise 10.3, Gradient of a Second Rank Tensor, AND the Cylindrical part of Exercise 10.5, Expansion in Cylindrical and Spherical Coordinates. Otherwise:
2. Do Exercise 10.11 Torsion pendulum

C. Do Exercise 10.9, Order of magnitude estimates.

D. Do Exercise 10.10, Fracture of a pipe. Note: this will give you some experience with cylindrical coordinates.