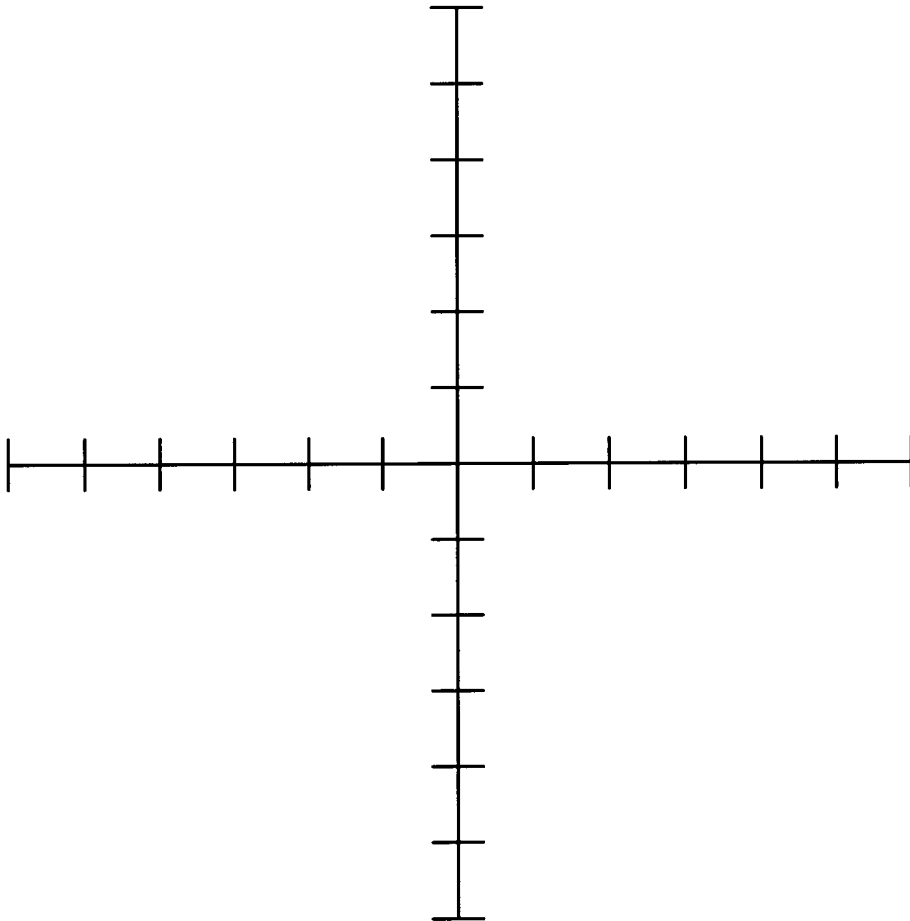


Homework 8

Geology 3063

November 3, 2000

1. What is the significance of the concept of “principal stress”?
2. Sketch a 2D stress ellipse for the case $\sigma_1 = 5GPa$ and $\sigma_2 = 2GPa$ where σ_1 is vertical.



3. Calculate σ_n and σ_s for a listric normal growth fault where $\sigma_1 = 2 \times \rho g z$, and is horizontal and extensional, and $\sigma_2 = \rho g z$ at depths of $100m$, $500m$, and $1km$. Assume that the fault goes into a horizontal decollement at $1km$, and that it has a dip of 75° at the surface. Also assume that the density of the system is uniform at $2.5 \frac{g}{cm^3}$. Show your work, including a sketch of the physical system.