Text problems: 6.21 (Use Brittle Coulomb-Mohr Theory), 6.39, 6.40

Bonus problem (75 points):

1. Write a Matlab program to solve 6.21 automatically using the Coulomb-Mohr Theory, for different values of pulley forces.

2. Plot the the following quantity for the entire cross-section where the stresses are highest (e.g. at B in 6.21):

\[
\frac{\sigma_1}{S_y} - \frac{\sigma_2}{S_y} - \frac{1}{n}
\]

(1)

Also, plot the cross-section itself, so you can see how equation (1) changes with location in cross-section. Keep in mind that the location of the cross-section may change as the loading values change and that I will check multiple load values, so make sure you select this location automatically.

See the Matlab rules on HW 5