

For each of the following 3 airfoils: NACA 2521, NACA 2506, and NACA 2306

1. Plot the airfoil based on the lesson 1 equations. On the same figure, plot the most-similar Joukowski airfoil. Verify your axes are equally scaled.
2. Using Joukowski airfoil theory, estimate the following:

$$C_{l_\alpha} \quad x_{ac} \quad C_{m_{\frac{c}{4}}} \quad \alpha_{ZL} \quad C_{l_0}$$

3. Compare your estimate with wind tunnel data (e.g. NACA no. 460, 1935. Or *Theory of Wing Sections* by Abbott and von Doenhoff)
4. Compare with XFOIL's vortex panel code for inviscid flow and  $Re=1.0M$