Consider a rectangular wing with an NACA 0009 airfoil spanning the test section of a wind tunnel (we say spanning the entire test section to indicate that the wing has no ends, or no wing-tips, which in turn means there are no end effects and the wing can be treated as an 'infinite wing'). The test section airflow is at standard sea-level conditions with a velocity of 50 m/s (~110 MPH). The wing is at an angle of attack of 4°, and the wind tunnel force balance measures a lift of 100 N.

1. Without looking at a picture of this airfoil, what is the camber of this airfoil?

   \[
   \text{ZERO} \quad \% \text{CAMBER} \\
   \text{NACA 0009} \quad \% \text{TTHICKNESS}
   \]

2. What is the maximum thickness of this airfoil as a percentage of chord?

   \[
   9\% 
   \]

3. What is the area of the wing?

   \[
   C_L = \frac{1}{2} \rho V^2 SC_L \\
   C_L = 2\pi \alpha = 2\pi \left( \frac{4\pi}{180} \right) = 0.4386 \\
   100 = \frac{1}{2} (1.225)(50)^2 S \circledast 0.4386 \]

   \[
   S = 0.149 \text{ m}^2 
   \]