FLUENT - Flow over an Airfoil- Problem 2

Problem Specification 1. Create Geometry in GAMBIT 2. Mesh Geometry in GAMBIT 3. Specify Boundary Types in GAMBIT 4. Set Up Problem in FLUENT 5. Solve! 6. Analyze Results 7. Refine Mesh

Problem 1

Problem 2

Problem 2

Repeat the incompressible calculation at $= 5^{\circ}$ including viscous effects. Since the Reynolds number is high, we expect the flow to be turbulent. Use the *k*-turbulence model with the enhanced wall treatment option. At the farfield boundaries, set turbulence intensity=1% and turbulent length scale=0.01.

(a) Graph the pressure coefficient (C_p) distribution along the airfoil surface for this calculation and the inviscid calculation done in the previous problem at = 5°. Comment on any differences you observe.

(b) Compare the C_l and C_d values obtained with the corresponding values from the inviscid calculation. Discuss briefly the similarities and differences between the two results.

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