ENGR 207 Assignment 8

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Contents

1 Problem 1

https://colab.research.google.com/drive/1RWHdWB-q75p5D8wAITxpecTgouMGM1SF?usp=sharing

2 Problem 2

https://docs.google.com/spreadsheets/d/1fHdDCUwEbyRVSmzKhdQTc2___CrNqODNr7s8pcfLS1mM/edit?usp=sharing

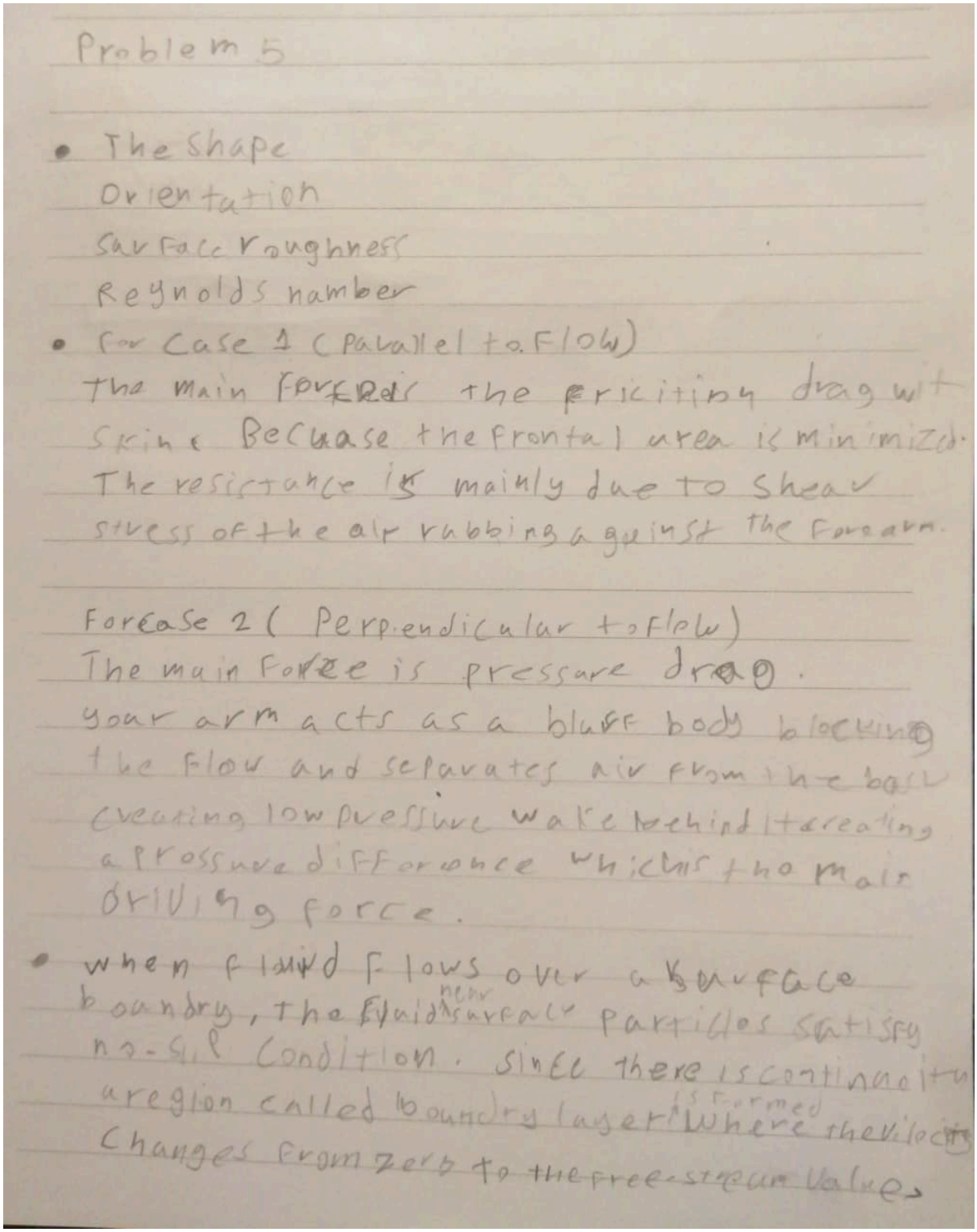
3 Problem 3

https://colab.research.google.com/drive/1RWHdWB-q75p5D8wAITxpecTgouMGM1SF?usp=sharing

4 Problem 4

https://docs.google.com/spreadsheets/d/1fHdDCUwEbyRVSmzKhdQTc2___CrNqODNr7s8pcfLS1mM/edit?usp=sharing

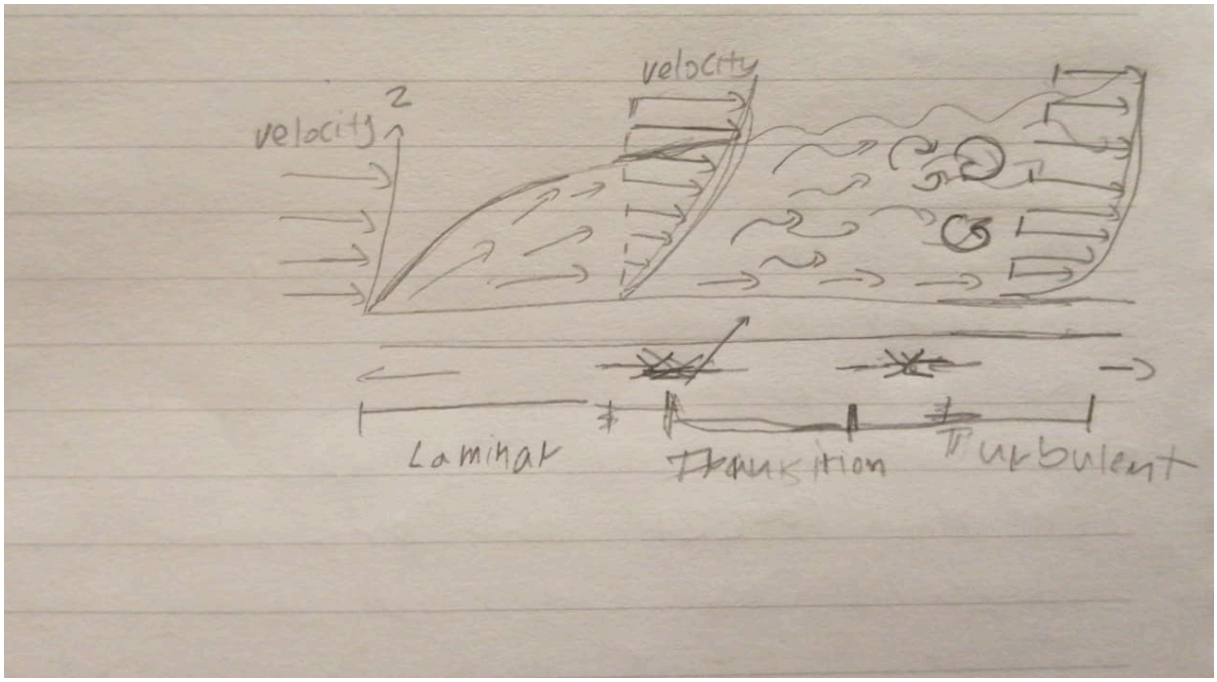
5 Problem 5



Problem 5

- The shape
  Orientation
  Surface roughness
  Reynolds number
- For case 1 (Parallel to Flow)
  The main force is the fricition drag with skin. Because the frontal area is minimized. The resistance is mainly due to shear stress of the air rubbing against the forearm.

  Forcase 2 (Perpendicular to flow)
  The main force is pressure drag.
  your arm acts as a bluff body blocking the flow and separates air from the back creating low pressure wake behind it creating a prossure difference which is the main driving force.
- when fluid flows over a surface boundry, the fluid near surface particles satisfy no-slip condition. since there is continuity a region called boundry layer is formed where the velocity changes from zero to the free-stream value.


velocity
z
velocity
Laminar
Transition
Turbulent