

Name	Team Number
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AAE 251: Introduction to Aerospace Design

Assignment 8—Aircraft Performance I

Due Tuesday April 2, 10:00 am on Blackboard

Instructions

*Write or type your answers into the appropriate boxes. **Make sure you submit a single PDF on Blackboard.***

Make sure you keep a record of submission receipts or the confirmation emails after each submission as a proof that your submission was accepted.

	Score	Max
Question 1		20
Question 2		4
Question 3		4
Question 4		16
Question 5		16
Question 6		10
TOTAL		70

Many aircraft performance questions require the same calculations. Creating the calculations as Matlab functions (not scripts) can save you effort in the homework and also help to hone your Matlab skills.

Create a set of well commented Matlab functions to implement the equations we gave or derived in class, i.e. :

- Lift, and drag as a function of velocity
- Thrust required in SLUF as a function of velocity for the jet from the case study
- Power required in SLUF as a function of velocity for the prop from the case study
- Thrust required in level-flight as a function of velocity, mass, surface area, e , AR , ρ and zero-lift drag coefficient
- Power required in level-flight as a function of velocity, mass, surface area, e , AR , ρ and zero-lift drag coefficient
- Any other functions you find you need in this homework

*Now use your Matlab functions to answer the following questions. Attach your **function and script** files and write your answers if needed as your response for each question. Make sure to show which functions you use, the values used in the function, and your final response. **Start each new question on a new page.***