
Lecture 3: Q

Drag

1. Why is the ratio $\frac{F}{\rho v^2 A} \sim 1$? Why the 1?
2. Where are all the assumptions made in the calculation?
3. I am not clear on why one dimensionless thing must be a function of another dimensionless thing

$$\frac{F}{\rho v^2 A} = f\left(\frac{v\sqrt{A}}{\nu}\right). \quad (1)$$

4. Whole process of determining drag is very fuzzy. Need we only multiply some dimensionless group (containing all five variables) by a specific constant?
5. How do we know which dimensionless groups to use?
6. Why did we choose any specific form

$$\frac{F}{\rho v^2 A} = f\left(\frac{v\sqrt{A}}{\nu}\right) \quad (2)$$

versus some of the other possibilities? It seems arbitrary.

Easy cases

1. How do you know that you have chosen enough constraints to get a unique answer? Or is the answer to try to solve by a variety of techniques so that you can become confident of the answer?

Dimensions

1. Dimension of 1000 persons? \$1000? %?

Statements

1. Everything in the class is basic logic. I like that fact.