Formulas

Here F_d is the drag force.

- $F_d \propto$ **Density**
- $F_d \propto$ **Area of the Object**
- $F_d \propto$ **velocity and object)^2**
- $F_d \propto$ **Coefficient of Drag**

The drag force is given by:

$$ F_d = \frac{1}{2} \rho A V^2 C_d $$

where:

- ρ is the fluid density,
- A is the reference area,
- V is the velocity,
- C_d is the coefficient of drag.

Reynolds number formula:

$$ R = \frac{\rho v l}{\mu} $$

where:

- ρ is the fluid density,
- v is the velocity of the object,
- l is the characteristic length,
- μ is the dynamic viscosity of the fluid.

Terminal Velocity

$$ F_d = Gravity $$
$$ \frac{1}{2} C_d \rho A V^2 = mg $$
$$ V_t = \sqrt\frac{2mg}{C_dA\rho} $$

where:

- V_t is the terminal velocity
- m is the mass of the object,
- g is the gravitional velocity,
- C_d is the coefficient of drag.
- A is the reference area,
- ρ is the fluid density,