Definitions

Chapter 4

True airspeed: Velocity of the airplane relative to the atmosphere, $V$.

Equivalent airspeed: A velocity proportional to the square root of the dynamic pressure, $V_e = \sqrt{\sigma V}$.

Indicated airspeed: Equivalent airspeed corrupted by instrument and position error.

Stall speed: The lowest speed that an airplane can maintain steady level flight, $V_{\text{stall}}$.

Flight envelope: The region of the velocity-altitude plane enclosed by $T - D = 0$, the stall speed and whatever other speed limits are imposed on the airplane.

Ceiling: Highest altitude that steady level flight can be maintained for a given weight and power setting.

Range: Distance traveled by an airplane during constant altitude cruise.

Endurance: Time elapsed during constant altitude cruise.

Constant altitude cruise: Cruise at constant altitude.

Distance factor: Instantaneous increase in distance per unit decrease in weight, $-dx/dW$.

Time factor: Instantaneous increase in time per unit decrease in weight, $-dt/dW$.

Distance: The horizontal distance traveled along a trajectory, $x_f - x_0$.

Time: The time elapsed along a trajectory, $t_f - t_0$.

Point performance: Performance at a point on a trajectory.
Path performance: Performance along a finite portion of a trajectory.

Climb angle: Flight path inclination at a point on a climb trajectory.

Rate of climb: $\dot{h}$ at a point on a climb trajectory.

Service ceiling: The altitude where the maximum rate of climb is 100 ft/min.

Cruise ceiling: The altitude where the maximum rate of climb is 300 ft/min.

Combat ceiling: The altitude where the maximum rate of climb is 500 ft/min.

Fuel factor: Increase in altitude per unit decrease in fuel, $-\frac{dh}{dW}$. 