

**Figure 1** *Definition of reference locations for longitudinal aerodynamic and mass balance*

First find the overall aircraft aerodynamic centre. Sum of anticlockwise moments due to lift about wing centre equals zero:

Find the cg of the fuselage to achieve a given overall target cg position. Sum of gravitational moments about wing centre equals 0:

Find the tail setting angle to balance the aircraft at a given angle of attack. Sum of aerodynamic moments about the cg is zero.