AIRCRAFT
WEIGHT AND BALANCE

Centre of Gravity Formula Cheat Sheet

1. **Determining CG as a % of Mean Aerodynamic Chord**

$$CG\ in\ \%\ of\ MAC = \frac{Distance\ aft\ of\ the\ LEMAC\ x\ 100}{MAC}$$

2. **Determining ∆CG caused by shifting weight**

$$\Delta CG = \frac{Weight\ shifted\ x\ Distance\ weight\ shifted}{Total\ Weight}$$

3. **Determining the weight that must be shifted to cause a specified CG change**

$$Weight\ shifted = \frac{\Delta CG\ x\ Total\ weight}{Distance\ weight\ is\ shifted}$$

4. **Determining the amount of ballast needed to move CG to a desired location**

$$Ballast\ weight = \frac{Aircraft\ weight\ x\ Distance\ of\ of\ limits}{Distance\ from\ the\ ballast\ to\ the\ desired\ CG}$$

5. **Determining distance weight must be shifted to move CG a specific distance**

$$Distance\ weight\ is\ shifted = \frac{\Delta CG\ x\ Total\ weight}{Weight\ shifted}$$

6. **Determining total weight of an aircraft that will have a specified ∆CG when cargo is moved**

$$Total\ weight = \frac{Weight\ shifted\ x\ Distance\ weight\ is\ shifted}{\Delta CG}$$