

## Flight Engineer Formulas

### Weather

Standard Lapse Rates:

Temp. 2°C / 1000'

Press. 1" HG / 1000'

DewPt Convergence. 2° C / 1000'

ISA Temp ° C = 15° C - [ 2°C (Pressure Altitude) / 1000 ]

°F = [ 9 (°C) / 5 ] + 32

### Specific Range

SR = NAM / FF lbs/hr

SR ( NAM / 1000 ) = TAS x 1000 / FF lbs/hr

Convert Mach to TAS: Mach TAS x Mach Factor = TAS

Determine Fuel Flow: Fuel lbs/hr = Total fuel lbs used / Total time flown

### Weight & Balance

CG = Total Moment / Total Weight

Moment = Weight x Arm

LW / BW = LD / BD

MAC = TEMAC - LEMAC

Convert CG% of MAC to inches: CG inches = CG% x MAC + LEMAC

Convert MAC to CG inches: CG% = [ (CG &endash; LEMAC) / MAC ] x 100

CG% / 100 = CG change / MAC