

>> Max Range Calculator for Propeller-driven airplane

-- this function will calculate the maximum range for an aircraft

```
function [R_prop_max] = maxRangeProp_cal(SFC, maxGrossWeight, maxFuelWeight, dragPolar_coeff..
    , zeroLiftDrag_coeff, wingArea, prop_eff)
% Assigning variables for simplicity
W_gross = maxGrossWeight; % [N] or [lb]
W_fuel = maxFuelWeight; % [N] or [lb]
K = dragPolar_coeff;
C_D0 = zeroLiftDrag_coeff;
S = wingArea;
% Converting the TSFC
c = SFC / 3600 / 550;
% Initial weight
W1 = W_gross;
% Final weight
W2 = W_gross - W_fuel;
% Lift coefficient
C_L_max = sqrt(C_D0 / K);
% drag coefficient
C_D_max = 2 * C_D0;
% Propeller efficiency
etha = prop_eff;

% Max range for propeller driven airplane
R_prop_max = (etha / c) * (C_L_max / C_D_max) * log(W1 / W2);
end
```