

Question #5

-- in this file the function maxRange_cal.mlx is used

Preparation

```
% Adding path to enable the use of function in another directory
doc = genpath('C:\Users\small\Desktop\classes\2019-spring\AAE251\hw9\matlab\functions');
addpath(doc);

wingArea = 47; % m^2
AR = 6.5;
e_oswald = 0.87;
zeroLiftDrag_coeff = 0.032;
TSFC = 1; % N of fuel per newton per thrust per hour
maxFuelWeight = 56370; % N
maxGrossWeight = 136960; % N
density = 0.52578; % kg/m^3

dragPolar_coeff = 1 / pi / e_oswald / AR;
```

Main

```
% Calling out the function to calculate the maximum range
[R_max] = maxRange_cal(TSFC, maxGrossWeight, maxFuelWeight, dragPolar_coeff...
    , zeroLiftDrag_coeff, wingArea, density);
```

Result

```
fprintf(['The maximum range for this aircraft at the altitude of',...
    '8 km is %.2f km'], R_max/1000);
```

The maximum range for this aircraft at the altitude of 8 km is 42220.01 km