Question #6

-- in this file the function **maxRangeProp_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 = 181; % ft^2
AR = 6.2;
e_oswald = 0.91;
zeroLiftDrag_coeff = 0.027;
SFC = 0.42; % N of fuel per newton per thrust per hour
maxFuelWeight = 248; % N
maxGrossWeight = 3400; % N
prop_eff = 0.83;

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

Main

```
% Calling out the function to calculate the maximum range
[R_prop_max] = maxRangeProp_cal(SFC, maxGrossWeight, maxFuelWeight, dragPolar_coeff...
    , zeroLiftDrag_coeff, wingArea, prop_eff);
```

Result

```
fprintf(['The maximum range for this aircraft at ',...
    'sea level is %.2f miles'], R_prop_max*0.000189394);
```

```
The maximum range for this aircraft at sea level is 719.04 miles
```