>> Maximum Velocity Calculator for Max Power

-- this function allows to calculate the maximum velocity for the corresponding maximum power of an aircraft .

```
function [V_max] = maxVel_for_power(max_power, weight, density, wing_area, zeroLiftDrag_coeff,

% Setting simplified variables for the descriptive input variables
rho = density;
W = weight;
S = wing_area;
C_D0 = zeroLiftDrag_coeff;
K = dragPolar_coeff;
P = max_power;

% Defining the system to solve
syms V
% Lumping up large coefficients
A = 0.5 * rho * S * C_D0;
B = 2 * K * W^2 / rho / S;
% Setting the system equation
eqn = A * V^4 + B == P * V;
% Solving the Power equation for V
V_max_vec = solve(eqn, V);

% eliminating the complex values in the vector
V_max_vec = double(V_max_vec);
z = [];
for k = 1:length(V_max_vec)
    if imag(V_max_vec(k)) == 0
        z = [z, real(V_max_vec(k))];
    end
end

% Therefore the maximum Velocity becomes
V_max = max(z);

end
```