```matlab
clc;

clear all;

y=[0 30000 60000 90000 120000];

g=[9.8100 9.7487 9.6879 9.6278 9.5682];

y1=55000;

p1=polyfit(y,g,1);

g1=polyval(p1,y1)

[p2]=polyfit(y,g,2);

g2=polyval(p2,y1)

p3=polyfit(g,y,1);

a3=9.75;

y3=polyval(p3,a3)

fprintf('\n Gravity acceleration using linear interpolation is %.4f',g1)

fprintf('\n Gravity acceleration using second order polynomial interpolation is %.4f',g2)

fprintf('\n Altitute where g=9.75 m/s2 is %.4f ',y3)
```

g1 =

    9.6986

g2 =

    9.6980

y3 =

    2.9490e+04

 Gravity acceleration using linear interpolation is 9.6986
 Gravity acceleration using second order polynomial interpolation is 9.6980
 Altitute where g=9.75 m/s2 is 29489.8382