```matlab
x = [401.10; 368.94; 282.40; 198.40; 68.77; -70.17; -212.22; -318.72; -403.86;
    -364.18; -354.80; -303.94; -218.34; -73.48; 68.79; 193.34; 279.40; 394.00];
y = [0; 64.30; 126.68; 161.73; 206.87; 191.78; 188.51; 116.14; 72.91;
    0; -68.93; -132.43; -181.06; -181.00; -211.84; -156.38; -123.27; -64.02];
plotting_function(x,y)

function solution = plotting_function(x,y)
Y = ones(size(x));
X = [x.^2 y.^2];
ab = LS_formula(X,Y);
Yo = sqrt((1-ab(1)*x.^2)/ab(2));
plot(x,y,'*');
hold on
plot(x,Yo,x,Yo.*-1);
hold on
end

function answer = LS_formula(X,Y)
answer = inv(transpose(X)*X)*transpose(X)*Y;
end
```
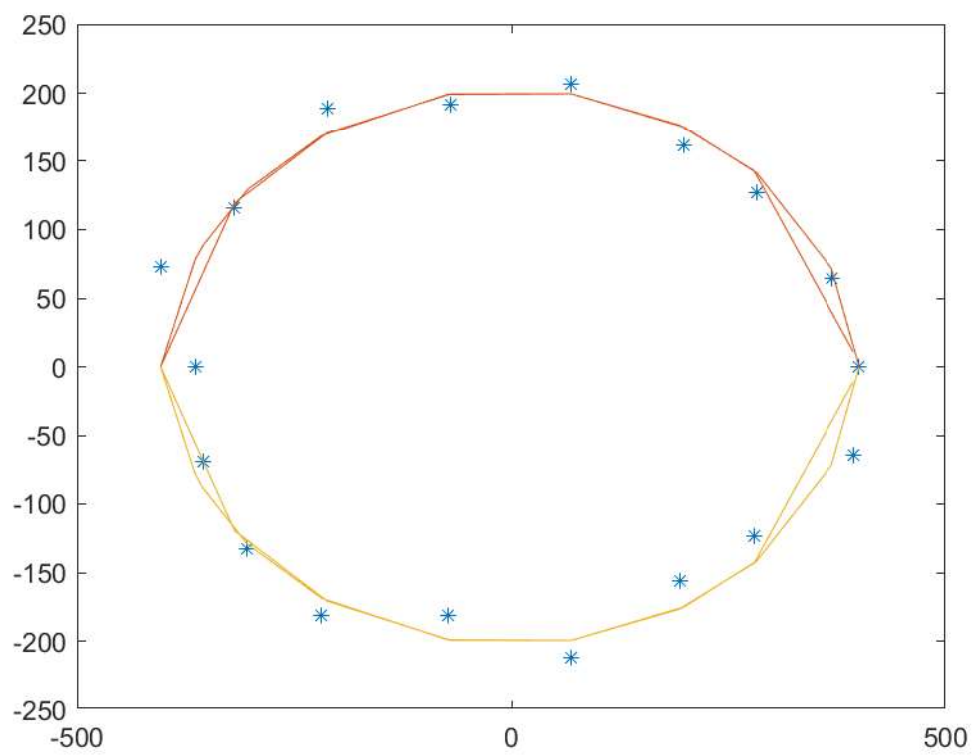
```matlab
A =  [12 -51 4 ;6 167 -68; -4 24 -41];
[Q,R] = q5_1226347696_(A)
now_justify = A - round(Q*R)

function[Q,R] = q5_1226347696_(A)
M = num2cell(A,1);
Q = zeros(size(A));
R = zeros(size(A));
for i=1:size(M,2)
    A = M{i};
    for j = 1: i-1
        qv = Q(:,j);
        R(j,i) = (qv'*M{i});
        A = A- (qv'*M{i})*qv;

    end
    R(i,i) = square_root(A);
    q = 1/(square_root(A))* A;
    Q(:,i) = q;
end
end
function output = square_root(A)
output = sqrt(transpose(A)*A);
end
```

```
>> q5_1226347696

Q =

    0.8571   -0.3943   -0.3314
    0.4286    0.9029    0.0343
   -0.2857    0.1714   -0.9429


R =

   14.0000   21.0000  -14.0000
        0  175.0000  -70.0000
        0        0   35.0000


now_justify =

     0     0     0
     0     0     0
     0     0     0

>>
```