```
function [ L ] = Phi_i( x, X_points, i )
%Phi_i is the lagrange polynomial evaluated at Xi

L = 1;
m = length(X_points);

for j = 1:m
    if j ~= i
        L = L*(x-X_points(j))/(X_points(i) - X_points(j));
    end
end

end
```

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```
function [ Sum ] = Phi_i_prime( x, X_points, i )
%PHI_I_PRIME Summary of this function goes here
%   Detailed explanation goes here

L = 1;
Sum = 0;
m = length(X_points);

for k = 1:m
    if k ~= i
       for j = 1:m
           if j ~= k
               if j ~= i
                   L =L*(x-X_points(j))/(X_points(i)-X_points(j));
               end
           end
       end
       Sum = Sum + L*(-X_points(k))/(X_points(i)-X_points(k));
       L=1;
    end
end
```

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