%double node

x = 0:2;

f = @(x) 1./(1+x);

df = @(x) -1./(1+x).^2;

n = 2 \* length(x);

z = repelem(x, 2);

d = nan(n);

d(:,1) = repelem(f(x)',2);

d(1:2:n-1, 2) = df(x)';

d(2:2:n-1, 2) = diff(f(x))./diff(x);

for j = 3:n

for i = 1:(n-j+1)

d(i,j) = (d(i+1, j-1) - d(i, j - 1)) / (z(i+j-1) - z(i));

end

end

disp(d);

x = 0:10

f = @(x) 1./(1+x)

n = length(x)

D = NaN(n)

D(:,1) = f(x)

for j = 2:n

for i = 1:(n-j+1)

D(i,j) = (D(i+1, j-1) - D(i, j - 1)) / (x(i+j-1) - x(i));

end

end

disp('Divided Differences table');

disp(D);

%forward differences

x = 0:10;

f = @(x) 1./(1+x);

n = length(x);

D = NaN(n);

D(:,1) = f(x);

for j = 2:n

for i = 1:(n-j+1)

D(i,j) = D(i+1, j-1) - D(i, j - 1);

end

end

disp('Divided Differences table');

disp(D);