n=input('Enter the number of equation=');

for i=1:1:n

x(i)=input('Enter the value of x=');

y(i)=input('Enter the value of y=');

end

xg=input('Enter the value of xg=');

h=x(2)-x(1);

for j=1:1:n-1

for i=1:1:n-j

if j==1

nf(i,j)=y(i+1)-y(i);

else

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

end

end

end

yg=y(i);

for j=1:1:n-1

term=nf(1,j);

u=(xg-x(1))/h;

for k=1:1:j

term=term\*u/k;

u=u-1;

end

yg=yg+term

end

fprintf('x(%d)=%f',yg);

% OUTPUT:-

% newton\_forward\_difference

% Enter the number of equation=8

% Enter the value of x=2

% Enter the value of y=19

% Enter the value of x=3

% Enter the value of y=48

% Enter the value of x=4

% Enter the value of y=99

% Enter the value of x=5

% Enter the value of y=178

% Enter the value of x=6

% Enter the value of y=291

% Enter the value of x=7

% Enter the value of y=444

% Enter the value of x=8

% Enter the value of y=643

% Enter the value of x=9

% Enter the value of y=894

% Enter the value of xg=3.5  
% yg = 62.5000

% yg = 70.7500

% yg = 70.3750

% yg = 70.3750

% yg = 70.3750

% yg = 70.3750

% yg = 70.3750

%

% x(7.037500e+01)=>>