```
% Roll No: 207
% Batch: C3
% Date: 04-05-2023
% Name: Mohanish Khambadkar
% Assignment 8

% Newton's Forward Interpolation Formula

x0=0;
x1=5;
x2=10;
x3=15;
x4=20;
x5=25;

y0=7;
y1=11;
y2=14;
y3=18;
y4=24;
y5=32;

a=x0
h=x1-x0
x=8;
n=(x-a)/h

dY01=y1-y0
dY02=y2-y1
dY03=y3-y2
dY04=y4-y3
dY05=y5-y4

dY11=dY02-dY01
dY12=dY03-dY02
dY13=dY04-dY03
dY14=dY05-dY04

dY21=dY12-dY11
dY22=dY13-dY12
dY23=dY14-dY13

dY31=dY22-dY21
dY32=dY23-dY22

dY41=dY32-dY31
y=y0+n*dY01+((n*(n-1)*dY11)/factorial(2))+((n*(n-1)*(n-2)*dY21)/
factorial(3))+((n*(n-1)*(n-2)*(n-3)*dY31)/
factorial(4))+((n*(n-1)*(n-2)*(n-3)*(n-4)*dY41)/factorial(5))


a =
```

```
     0

h =

     5

n =

    1.6000

dY01 =

     4

dY02 =

     3

dY03 =

     4

dY04 =

     6

dY05 =

     8

dY11 =

    -1

dY12 =

     1

dY13 =

     2
```

```
dY14 =
     2

dY21 =
     2

dY22 =
     1

dY23 =
     0

dY31 =
    -1

dY32 =
    -1

dY41 =
     0

y =
   12.7696
```

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