```c
#include<stdio.h>
#include<math.h>
float f1(float x);
float f2(float x);
float f3(float x);
int main()
{
float a,x,y0,y1;
int r=3;
a=0;
y0=(r/10.);
x=0.4;
printf("\n first approximation :\n");
y1=y0+f1(x);
printf("y(%3.1f)=%7.5f\n",x,y1);
printf("\n second approximation :\n");
y1=y0+f2(x);
printf("y(%3.1f)=%7.5f\n",x,y1);
printf("\n third approximation :\n");
y1=y0+f3(x);
printf("y(%3.1f)=%7.5f\n",x,y1);
}
float f1(float x)
{
float z;
z=pow(x,3)/3.;
return(z);
}
float f2(float x)
{
float z;
z=pow(x,3)/3.+pow(x,7)/63.;
return(z);
}
float f3(float x)
{
float z;
z=pow(x,3)/3.+pow(x,7)/63.+2*pow(x,11)/2079.+pow(x,15)/59535.;
return(z);
}
//*Output*//
 first approximation :
y(0.4)=0.32133

 second approximation :
y(0.4)=0.32136

 third approximation :
y(0.4)=0.32136
```