```c
#include <stdlib.h>
#include <stdio.h>
#include <fcntl.h>
#include <math.h>

struct dpoint
{
    double x;
    double p;
};

//generate data-file for F(x)
void
generateF(struct dpoint* mas,int n)
{
    FILE* out = fopen("F.txt","w");
    double sum = 0;
    fprintf(out, "0.000 %lf\n",-2*abs(mas[0].x));
    for (int i = 0; i < n; ++i)
    {
        fprintf(out, "%lf %lf\n\n",sum,mas[i].x);
        sum+= mas[i].p;
        fprintf(out, "%lf %lf\n",sum,mas[i].x);
    }
    fprintf(out, "1.000 %lf\n",2*mas[n-1].x);
    fclose(out);
}

//generate data-file for polygon
void
generateP(struct dpoint* mas,int n)
{
    FILE* out = fopen("P.txt","w");
    for (int i = 0; i < n; ++i)
    {
        fprintf(out,"%lf %lf\n",mas[i].p,mas[i].x);
    }
    fclose(out);
}

int
main(void)
{
    int n;
    double e;
    double p,q = 0.0;
    printf("Enter n and p\n");
    scanf("%d %lf",&n,&p);
    q = 1.0 - p;
    printf("Enter e\n");
    scanf("%lf",&e);
    struct dpoint mas[n];
    double sum = 0;
    double M,D,sig = 0.0;
    for (int i = 0; i < n-1; ++i)
    {
        mas[i].x = i+1;
        mas[i].p = p*pow(q,i);
```

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59.          M += mas[i].x*mas[i].p;
60.          D += mas[i].x*mas[i].x*mas[i].p;
61.          sum += mas[i].p;
62.      }
63.      mas[n-1].x = n;
64.      mas[n-1].p = pow(q,n-1);
65.      M += mas[n-1].x*mas[n-1].p;
66.      D += mas[n-1].x*mas[n-1].x*mas[n-1].p;
67.      D-= M*M;
68.      sum += mas[n-1].p;
69.      sig = sqrt(D);
70.      printf("Sum of p is %lf\n",sum);
71.      if (abs(sum - 1) >= e)
72.      {
73.          printf("|%lf-1| >= %lf\n",sum,e);
74.          return 0;
75.      }
76.      for (int i = 0; i < n; ++i)
77.      {
78.          printf("%d:\n",i);
79.          printf("X = %lf p =%lf\n",mas[i].x,mas[i].p);
80.      }
81.      printf("M is %lf\n",M);
82.      printf("D is %lf\n",D);
83.      printf("sig is %lf\n",sig);
84.      generateF(mas,n);
85.      generateP(mas,n);
86.      system("gnuplot scF.txt");
87.      system("gnuplot scP.txt");
88.      system("ristretto F(x).png");
89.      system("ristretto polygon.png");
90.      return 0;
91.  }
```