```cpp
#include <iostream>
#include <cmath>
#include <ctime>
using namespace std;

int main ()

{

        double x, y, p, pi, dpi, ru, nh, nt;
        int m, n, trials;
        clock_t start, end;
        double t;

        //p stands for "probability"
        //dpi is the uncertainty of pi
        //ru stands for "relative uncertainty"

        srand((unsigned int)time(NULL));
        cout << "Number of throws: ";
        cin >> nt ;

        cout << "Number of trials: ";
        cin >> trials;


        for(m=1; m<=trials; m++)

        {
                nh=0;
                start=clock();
                for(n=1; n<=nt; n++)

                {
                        x = (double) rand()/RAND_MAX;
                        y = (double) rand()/RAND_MAX;

                                if(x*x + y*y <= 1)
nh++;
                }
                end=clock();
        t=(double)(end-start)/CLOCKS_PER_SEC;
        p = nh/nt;
        pi = 4*p;
        dpi = 4*sqrt(nt*p*(1-p))/nt;
        ru = dpi/pi;
        cout << "TRIAL=" << m << "\ttime=" << t <<endl;
        cout << "nh = " << nh << "\tpi=" << pi << "\tp = " << p << "\tdpi = " << dpi
        << "\tru = " << ru << endl;
        }
}
```