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/*WAP to find solution of Non-Linear equations by Fixed-Point Iteration
Method.*/
#include <iostream>
#include <cmath>
#include <iomanip>
#include <cstring>
#define pi 3.14159265358979323846264338327950288419716939937510
#define e 2.718281828
using namespace std;
double x,previous_x;
inline void maths_function()
{
   cout<<"\t\t"<<right<<setw(9)<<setprecision(9)<<x;
   x = 1/pow(x+1,0.5);//Put your phi(x) here
   cout<<"\t\t"<<right<<setw(9)<<setprecision(9)<<x;
}
int main()
{
   int k,error,counter;
   cout.precision(9);
   while(1)
   {
      counter=0;
      cout<<"\n\tFIXED-POINT ITERATION METHOD\n\n";
      cout<<"\nEnter your initial guess (a) : ";
      cin>>x;
      cout<<"\nEnter tolerance (10^-k)\n";
      cout<<"\nEnter k: ";
      cin>>k;

cout<<"\n\n**********************************************************
**************************************************************
*****************************************\n\n";
      error=10;
      cout<<" SN\t\t  a(n)"<<"\t\t\t phi(a(n))\n\n";
      while (error>9)
      {
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        cout<<" "<<++counter;
        previous_x=x;
        maths_function();
        cout<<endl<<endl;
        error = (int)trunc(abs((x*pow(10,k+1)-previous_x*pow(10,k+1))));//here
we look whether digit is repeating or not
        /*
        OR
        double y = pow(x,3) + pow(x,2) - 1;//put your function here
        error = (int)trunc(abs((x-y)*pow(10,k)));//error is in order of 10^k
        */
      }

cout<<"\n\n**********************************************************
**************************************************************************
*****************************************\n\n";
   }
   return 0;
}
```