

406410114 UVA10221 Satellites

```
//s , a ,min or deg
// s dis, a is degree
// output arc dis and chord dis
#include <bits/stdc++.h>
using namespace std;

int main(){

    long long int i,j,k;
    double r,s,a,chord,arc;// s is extra dis
    string unit;
    r = 6440.0 ;// earth r
    while( cin >> s>> a>> unit ){
        if (unit == "min") a/=60; // deg = min*60
        if ( a >180.0 )
            a = 360.0-a; // neg->pos
        //chord = ( r+s ) * cos( ( 90.0-a/2.0 )/180.0 * M_PI ) *2.0;
        chord = ( r+s ) * sin( a/2.0/180.0*M_PI ) *2 ;
        arc = 2.0 * M_PI*(r+s) * a/360.0;
        cout << fixed<< setprecision(6)<<arc<<" "<<chord << "\n";

    }//while
    return 0;
} //main
```