```
//
//  Distance.hpp
//  Lab7b
//
//  Created by Michael Hannigan on 10/13/20.
//

#ifndef Distance_hpp
#define Distance_hpp

#include <iostream>
#include <stdio.h>
using namespace std;

class Distance //English Distance class
{
private:
    int feet;
    float inches;
public: //constructor (no args)
    Distance();
    Distance(int ft, float in);
    Distance operator +(const Distance & d2) const;
    friend Distance operator -(const Distance & d1, const Distance & d2);
    friend ostream& operator << (ostream& s, const Distance d);
    friend istream& operator >> (istream& s, Distance& d);
};

#endif /* Distance_hpp */
```

```
//
//  Distance.cpp
//  Lab7b
//
//  Created by Michael Hannigan on 10/13/20.
//

#include "Distance.hpp"

Distance::Distance(){
   feet = 0;
   inches = 0.0;
}

Distance::Distance(int ft, float in){
   feet = ft;
   inches = in;
}

Distance Distance::operator+(const Distance & d2) const{
   int totalFeet = feet + d2.feet;
   float totalInches = inches + d2.inches;
   return Distance(totalFeet, totalInches);
```

```
}

Distance operator-(const Distance & d1, const Distance & d2){
  int totalFeet = d1.feet - d2.feet;
  float totalInches = d1.inches - d2.inches;
  return Distance(totalFeet, totalInches);
}

ostream& operator << (ostream& o, const Distance d){
  o<<d.feet<<"feet "<<d.inches<<"inches"<<endl;
  return o;
}

istream& operator >> (istream& i, Distance& d){
  i>>d.feet;
  i>>d.inches;
  return i;
}
```

```
//
//  main.cpp
//  Lab7b
//
//  Created by Michael Hannigan on 10/13/20.
//

#include <iostream>
#include "Distance.hpp"


int main(int argc, const char * argv[]) {
  Distance dist1, dist3, dist4; //define distances
  cin>>dist1;
  Distance dist2(11, 6.25); //define, initialize dist2
  dist3 = dist1 + dist2; //single '+' operator
  dist4 = dist1 - dist2; //friend '-' operators
  //display all lengths
  cout << "dist1 = ";
  cout<< dist1 << endl;
  cout << "dist2 = ";
  cout<< dist2 << endl;
  cout << "dist3 = ";
  cout<< dist3 << endl;
  cout << "dist4 = ";
  cout<< dist4 << endl;
  return 0;
}
```

//////OUTPUT//////

```
1
2
dist1 = 1feet 2inches

dist2 = 11feet 6.25inches

dist3 = 12feet 8.25inches

dist4 = -10feet -4.25inches

Program ended with exit code: 0
```