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

class science{
    friend ostream& operator<<(ostream&, const science& );
    friend istream& operator>>(istream&, science& );
private:
    double a;
    int n;
public:
    science():a(0), n(0) {}
    science(double _a) :a(_a), n(0) {}
    science(double _a, int _n){
        int k;
        if (_a==0)
            k = 0;
        else
            k = floor(log10(fabs(_a)));
        a = _a/pow(10,k);
        n = _n + k;
    }
    const science operator+(science& rhs) const {
        int i = n-rhs.n;
        return science(pow(10,i)*a+rhs.a, rhs.n);
    }
    const science operator-(science& rhs) const {
        int i = n-rhs.n;
        return science(pow(10,i)*a-rhs.a, rhs.n);
    }
    const science operator*(science& rhs) const {
        return science(a*rhs.a, n+rhs.n);
    }
    const science operator/(science& rhs) const {
        return science(a/rhs.a, n-rhs.n);
    }//finish this class
};
ostream& operator<<(ostream& os, const science& f){
    os << f.a << "*10^" << f.n ;
    return os;
}
istream& operator>>(istream& is, science& f){
    double _a;
    int _n;
    is >> _a >> _n ;
    int k;
    if (_a==0)
        k = 0;
```

```
50:     else
51:         k = floor(log10(fabs(_a)));
52:     f.a = _a/pow(10,k);
53:     f.n = _n + k;
54:     return is;
55: }
56: int main(){
57:     science v,t,w;
58:     char op;
59:     while(1){
60:         cout<<"Please enter an expression:"<<endl<<endl;
61:         cin>>v;
62:         cin>>op;
63:         if( op!='+' && op!='-' && op!='*' && op!='/' ) break;
64:         cin>>t;
65:         if(cin.fail()) break;
66:         switch(op){
67:             case '+':  w = v+t; break;
68:             case '-':  w = v-t; break;
69:             case '*':  w = v*t; break;
70:             case '/':  w = v/t; break;
71:         }
72:         cout<<v<<' '<<op<<' '<<t<<" = "<<w<<endl<<endl;
73:     }
74:     return 0;
75: }
76:
```