```cpp
#include <iostream>
#include <string>
using namespace std;
class Rational
{
private:
    int numer;
    int denom;
public:
    int getNumer() const;
    int getDenom() const;
    void setNumer(int);
    void setDenom(int);
    void input();
    void output() const;
    Rational();
    Rational(int, int = 1);
    void reduce();
};
void Rational::reduce()
{
    int x = abs(numer);
    int y = abs(denom);
    // find minimum of x and y
    int min = x;
    if (y < x)
        min = y;

    // finding a common factor greater than 1
    int gcf = 1;
    for (int i = 2; i <= min; i++) {
        if (x % i == 0 && y % i == 0) {
            gcf = i;
        }
    }
    numer = numer / gcf;
    denom = denom / gcf;
    if (denom < 0)
    {
        numer = -numer;
        denom = -denom;
    }
}
Rational::Rational()
{
    numer = 0;
    denom = 1;
}
Rational::Rational(int x, int y)
```

```
50 {
51     numer = x;
52     if (y != 0)
53         denom = y;
54     else
55         denom = 1;
56     reduce();
57 }
58 int Rational::getNumer() const
59 {
60     return numer;
61 }
62 int Rational::getDenom() const
63 {
64     return denom;
65 }
66 void Rational::setNumer(int x)
67 {
68     numer = x;
69     reduce();
70 }
71 void Rational::setDenom(int x)
72 {
73     denom = x;
74     if (denom == 0)
75         denom = 1;
76     reduce();
77 }
78 void Rational::input()
79 {
80     cout << "Numerator? ";
81     cin >> numer;
82     cout << "Denominator? ";
83     cin >> denom;
84     while (denom == 0)
85     {
86         cout << "Denominator can't be zero!\n";
87         cout << "Denominator? ";
88         cin >> denom;
89     }
90     reduce();
91 }
92 void Rational::output() const
93 {
94     if (denom != 1)
95         cout << numer << "/" << denom << endl;
96     else
97         cout << numer << endl;
98 }
```

```
 99  int main()
100  {
101      Rational a, b(6), c(-6, -8), d(9, -6);
102
103      a.output();
104      b.output();
105      c.output();
106      d.output();
107      return 0;
108  }
```