

```

#include <bits/stdc++.h>
using namespace std;

int main()
{
    // Get the user input
    cout << "Circuit Description: ";
    string circuitDesc;
    getline(cin, circuitDesc);

    // Define the voltage and Equivalent
    resistance variables double voltage{},
    req{0};

    int len{circuitDesc.length()};

    if(circuitDesc[0] == 'P')
    {
        // Iterate through the string using spaces as delimiters and converting the
        substrings to doubles for(int i{1}, j{}; i < len; i=j)
        {
            j = circuitDesc.find(" ", i+1);

            if (j != string::npos)
                req += 1 / stod(circuitDesc.substr(i, j-i));
            else
                break;
        }
        // Invert the value to get R
        equivalent req = 1 / req;
    }
    else if (circuitDesc[0] == 'S')
    {
        for(int i{1}, j{}; i < len; i=j)
        {
            j = circuitDesc.find(" ", i+1);

            if (j != string::npos)
                req += stod(circuitDesc.substr(i, j-i));
            else
                break;
        }
    }
    else
    {
        cout << "Wrong Circuit Description" << endl;
        return 0;
    }

    // Read the voltage
    applied cout <<
    "Voltage Applied: ";
    cin >> voltage;

    cout << "Equivalent Resistance: " << req << endl;
    cout << "Current: " << voltage / req << endl;
}

```

```
Circuit Description: S 1.5 12.85 3.6 5 6.6 7 E
Voltage Applied: 3.8
Equivalent Resistance: 36.55
Current: 0.103967
```

$$R_{eq} = \sum R = 1.5 + 12.85 + 3.6 + 5 + 6.6 + 7 = 36.55 \Omega$$

$$I = \frac{V}{R} = \frac{3.8}{36.55} = 0.103967 \text{ Amp}$$


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```
Circuit Description: L 2.5 5.2 E
Voltage Applied: 9
Wrong Circuit Description
```

```
Circuit Description: P 1.4 2.26 3 E
Voltage Applied: 7
Equivalent Resistance: 0.671097
Current: 10.4307
```

$$R_{eq} = \frac{1}{\sum \frac{1}{R_i}} = \frac{1}{(\frac{1}{1.4} + \frac{1}{2.26} + \frac{1}{3})} = 0.671 \Omega$$

$$I = \frac{V}{R} = \frac{7}{0.671} = 10.43 \text{ Amp}$$


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```
Circuit Description: S 9 E
Voltage Applied: 9
Equivalent Resistance: 9
Current: 1
```

$$R_{eq} = \sum R = 9 = 9 \Omega$$

$$I = \frac{V}{R} = \frac{9}{9} = 1 \text{ Amp}$$


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```
Circuit Description: Z 8.2 3.1 1.3 7.8 E
Voltage Applied: 5
Wrong Circuit Description
```

```
Circuit Description: P 8.2 3.1 1.3 7.8 E
Voltage Applied: 5
Equivalent Resistance: 0.745174
Current: 6.70984
```

$$R_{eq} = \frac{1}{\sum \frac{1}{R_i}} = \frac{1}{(\frac{1}{8.2} + \frac{1}{3.1} + \frac{1}{1.3} + \frac{1}{7.8})} = 0.745 \Omega$$

$$I = \frac{V}{R} = \frac{5}{0.745} = 6.7 \text{ Amp}$$


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