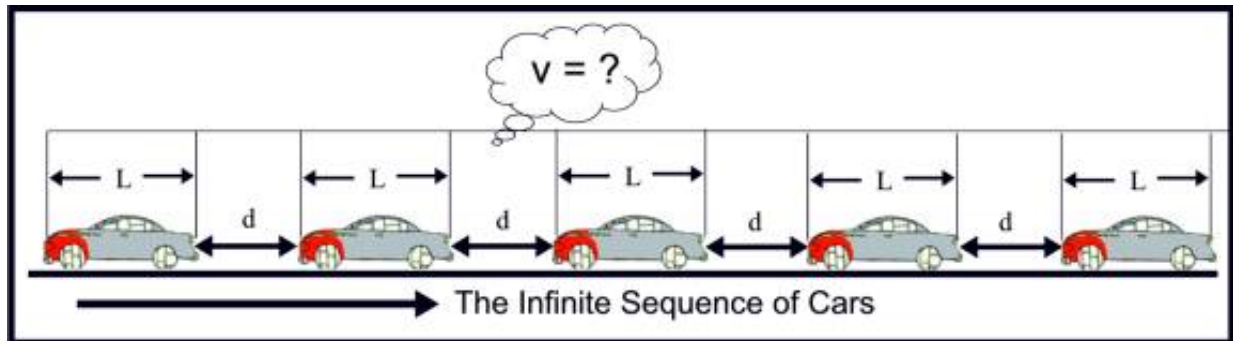# Problem F
Traffic Volume

Input: standard input
Output: standard output
Time Limit: 1 second

In the picture below (or above depending on HTML response :)) you can see a street. It has infinite number of cars on it. The distance between any two consecutive cars is **d**, length of each car is **L** and the velocity of each car is **v**. The volume of cars through a road means the number of cars passing through a road in a specific amount of time. When the velocity is constant, **d** must be minimum for the volume of cars passing through the road to be maximal. In our model when the velocity of all the cars is **v** then the minimum possible value of **d** is **v²/(2f)** (The more the car velocity the more distance you need to bring down your velocity to zero). Here **f** is the deceleration due to break.

Keeping this model in mind and given the value of **L** and **f** your job is to find the value of **v** for which the volume of traffic through the road is maximal.

Input

The input file contains several lines of input. Each line of input contains two integers **L (0<L<=100)** and **f(0<f<=10000)**. The unit of L is meter and the unit of f is meter/second². The input is terminated by a single line whose value of L and f is zero.

Output

For each line of input except the last one produce one line of output. Each line contains two floating-point number **v** and **volume** separated by a single space. Here **v** is the velocity for which traffic flow is maximal and **volume** is the maximum number of vehicles (of course it is a fraction) passing through the road in an hour. These two floating points should have eight digits after the decimal. Errors less than **1e-5** will be ignored.

Sample Input

```
5 3
0 0
```

Output for Sample Input

```
5.47722558 1971.80120702
```

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Special Thanks: Derek Kisman