

## 7076 Highway

You just got your year-end bonus. As you had a lot of money, you decided to take your family to the United States for a twenty-day self-driving travel. One day, when you were driving on the Great Plains, you found you had left highway by accident. After checking your GPS, you realized that you were now  $D$  ( $0 < D \leq 1000$ ) miles from the highway. The highway is straight and extends infinitely. When you are driving outside the highway, your maximum speed is  $v_0$  mph, but on the highway you can move in a maximum speed of  $v_1$  mph ( $200 \geq v_1 > 1.2v_0 > 0$ ). It took no time to get on or off the highway. Suddenly, it came to your mind that there was a region inside which any point can be reached within  $T$  ( $0 < T \leq 1000$ ) hours. You wanted to know area of this region.

### Input

Input contains no more than 50 test cases.

Each test case is a single line containing 4 integers  $v_0$ ,  $v_1$ ,  $D$  and  $T$ , as above mentioned.

### Output

For each test case, output your answer in a line with the case number, follow the format in sample. Its unit should be square mile. Your answer will be accepted if its absolute or relative error is less than  $10^{-6}$ .

**Hint:** You should print a blank after ':' in the output.

### Sample Input

```
5 10 10 10
5 20 10 10
```

### Sample Output

```
Case 1: 9360.97707377
Case 2: 14873.82733943
```