# 26 | Skiing
20 points

Introduction

A ski station consists of lifters and slopes.

Lifters bring you uphill from a lower starting point to a higher ending point, while slopes are the other way around. Lifters should have at least one slope connected to its starting and ending point.

Slopes have a difficulty level, which limits the maximum speed a skier can reach on them: 20 km/h on green slopes, 30 km/h on blue slopes, 40 km/h on red slopes, and 50 km/h on black slopes. Slopes can start or end in another slope or in a lifter. Multiple slopes and lifters can be connected.
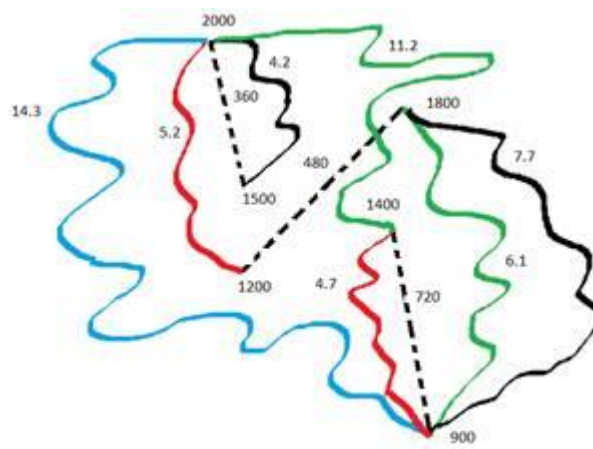
Given a ski domain map, which contains lifters and slopes, determine the minimum time (in seconds) needed to go from the top of the ski station to the bottom.

Note that, for the sake of simplicity, we cannot have two or more starting and ending points with the same height. Moreover, in case of trouble, we can always call the relief helicopter, which will bring us to the bottom of the ski resort in two hours.

Input

The map should be read as follows: The first number in the input is the number of lifters and slopes the ski station has. Then, for each element, the input provides a letter that specifies if it is a lifter (L) or a slope (S). For lifters, following we have the time a lifter requires to reach its end in seconds, followed by its starting point and ending point height, both given in meters. For slopes, we have the difficulty level, the length in kilometers, and the starting point and the ending point heights, both given in meters as well.

Output

Print out the minimum time in seconds with a resolution of two decimals needed to go from the top of the ski station to the bottom.

Example

Input
```
10
L 360 1500 2000
L 480 1200 1800
L 720 900 1400
S black 4.2 2000 1500
S red 5.2 2000 1200
S blue 14.3 2000 900
S green 11.2 2000 1400
S red 4.7 1400 900
S black 7.7 1800 900
S green 6.1 1800 900
```

Output
```
1502.40
```

Note: in this example the fastest way down is 2000 – red slope – 1200 – lifter – 1800 – black slope – 900