



# Hyperloop - Global Metro

Catalysts Coding Contest  
International 2017

Image source: [Hyperloop Transportation Technologies](https://www.hyperloop.com)

HTT/JumpStartFund  
OMEGABYTE | 3D

# Hyperloop

Hyperloop is a revolutionary new transportation technology. Passengers are propelled in pods in low pressure tubes at high speeds. We can connect up the entire world with such routes like a global metro system. Your task in this CCC is to crunch the data and plan hyperloop routes to transform the way we travel around our planet.

Image source: [Mark Ovenden](#)



# Level 1 - Connection time



Your task in this level is to estimate the travel time for a direct hyperloop connection.

The input consists of a file containing locations and a direct hyperloop connection:

- A **location** is a named (x, y) position on a map. The coordinates are in meters.
- The **hyperloop connection** directly connects exactly two locations. There are no intermediate stops.

Some locations may be unused; just ignore them.

The distance between two locations is the ordinary (Cartesian) distance. That is, the world is flat and there are no obstacles.

In our model, the hyperloop travels at a constant speed of **250 m/s** and waits for **200 seconds** at each stop. The hyperloop travel time includes the wait time at the start location of the journey. The trip is over at the end location - no more waiting time there.

You should output the hyperloop connection travel time (in seconds), rounded to the nearest integer.

# Data format

Coordinates are given as integers.

## Input

A text file consisting of the following lines:

*Single line:* <NumberOfLocations>

*NumberOfLocations lines:* <LocationName> <LocationX> <LocationY>

*Single line:* <HyperloopLocationName> <HyperloopLocationName>

## Output

*Single line:* <TravelTime>





# Example

## Input

```
5
Prague 0 286100
Brno 152440 194430
Vienna 126350 78010
Bratislava 183680 71710
Budapest 318860 0
Bratislava Brno
```

## Output

```
707
```

## Explanation

```
hyperloopTime(Bratislava Brno)
    = distance(Bratislava Brno) / 250.0 + 200.0
    = 126633.9 / 250.0 + 200.0
    = 706.5
```



# Acknowledgements



Disclosure: Catalysts is an early investor in HTT and busily working with HTT to make dreams come true.

This game contains data from the following sources:

- [GeoNames](#) ('cities15000.zip'), under a [Creative Commons Attribution 3.0](#) license
- [OpenFlights](#) ('Airports' and 'Routes'), under an [Open Database License 1.0](#) license