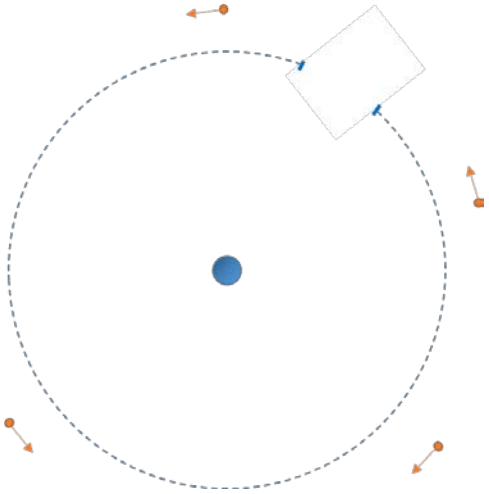
29 Transmission Tower

16 points

Introduction

Hi commander! You are our last hope. You are in the planet Scarif, in the middle of a battle and your mission is to send the blueprints of the Death Star to the rebels.
You already have the blueprints and you are in the transmission tower, but we have a problem. The planet is surrounded by a shield that does not permit any communication with the ships that orbit the planet.
One of our ships have opened a hole in the shield, but we don't know how long we can have it open.



You must choose a ship to transmit the message in the shortest possible time. You have the following data:

- Size of the blueprints in terabytes (TB)
- Coordinates of the hole (start and end) in degrees
- Number of ships orbiting the planet
- Name of each ship orbiting the planet
- Angular position of each ship orbiting the planet in degrees.
- Angular speed of each ship orbiting the planet in rad/sec
- Bandwidth of each ship orbiting the planet in MB/sec

You also have a robot that provides you the next mathematical information:

1. To translate from degrees to radians you can use the formula:

$$rad = \frac{degrees * \pi}{180}$$

2. To calculate the time to go from an angular coordinate X to another coordinate Y you can use the formula:

$$t = \frac{Y - X}{w}$$

Where:

- X is the initial position in radians
- Y is the final position in radians
- w is the angular speed of the ship in radians/sec
- t is the time to arrive to Y in seconds

The conversion between storing units is:

1 TB = 1024 GB
1 GB = 1024 MB

The transmission must be continuous, if the ship goes out of the whole the transmission must be started again from the start when the ship enters again in the whole.

If you find a ship to transmit the blueprints your program must output the name of this ship. If there are not any ship with enough bandwidth to transmit the message your program must output the message **MISSION FAILED**.

Input

```
150
67;100
8
Droid starfighter;45;0.0004;6787
ARC-170;123;0.0055;27657
Delta-7;98;0.0067;477889
TIE interceptor;176;0.000999;83776
Naboo N-1;356;0.000134;8976
Y-wing;8;0.000033;23907
A-wing;222;0.0055;43456
X-wing;90;0.00397;98000
```

Output

```
Y-wing
```