

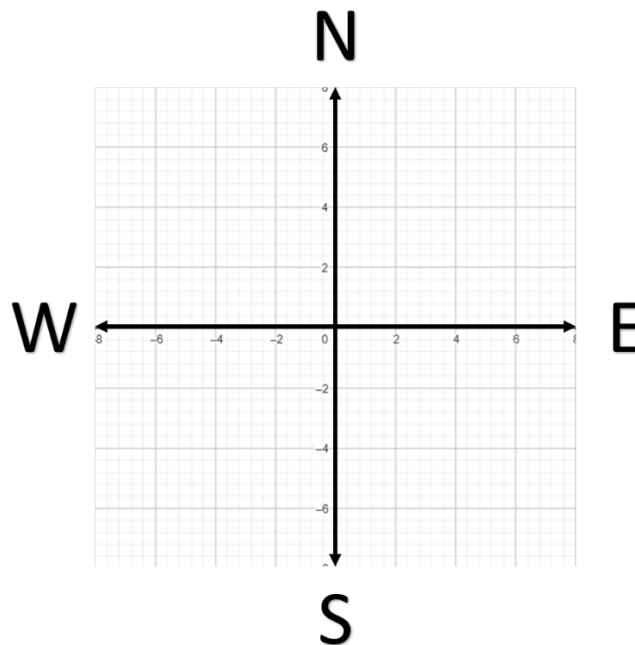
5

Follow the steps

5 points

Introduction

The Jedi council has granted you the astromech droid C0-DY as an assistant to navigate your starship. Before planning your first space flight, you want to get familiar with the droid navigation system in an XY-Cartesian plane. Given a set of points (x_0, y_0) , (x_1, y_1) , ... (x_n, y_n) write a program that prints instructions for the droid to move to each point. Follow the order the points were given starting at the axis origin $(0, 0)$ and moving in the cardinal directions. If one axis does not require a move, then do not print the move.

**Input**

The first line defines the number of points that the droid must follow.

The content of each line, after the first one, is a pair of integer values defining a (x, y) point.

Output

A pair of lines defining how to reach the corresponding (x, y) point. First line for the movement in Y-axis (North-South) and second line for the movement in X-axis (West-East).

Example

Input

4

3 5

2 5

2 7

9 5

Output

Walk 5 steps north

Walk 3 steps east

Walk 1 steps west

Walk 2 steps north

Walk 2 steps south

Walk 7 steps east