

Input	Output
4 12 1 0 1 2 1 4 1 8 1 9 1 10 2 5 2 9 3 0 3 4 -1	5 1 1 1 3 4
3 11 0 0 0 3 0 4 0 7 0 9 0 10 1 7 1 9 1 10 -1	4 1 2 2 4
3 10 0 1 0 2 0 3 0 5 0 6 0 7 1 3 1 5 1 7 2 3 2 4 2 5 -1	1 12