
 Junior Division - Patolli

PROBLEM: Given the grid below for the game of ACSL Patolli, utilize the following rules to play the game. All rules must be applied in the sequential order listed.

1. There are 2 players. Each player has 3 markers.
2. The markers move according to the roll of a die (1 – 6).
3. Markers move in numerical order around the grid.
4. If, on a die roll, a marker lands on an occupied location, then that marker loses its turn and remains at its previous location.
5. A marker can jump over another marker on its way to finish its move.
6. A marker finishes its way around the grid when it lands on location 52. It is then removed from the board. A move can't take a marker beyond location 52. If it does, the marker remains at its previous location.
7. If, on a die roll, a marker lands on an unoccupied location that is a prime number, the marker then moves six locations forward. However, it stops immediately before any occupied location.
8. If, on a die roll, a marker lands on an unoccupied location that is a perfect square greater than 4, the marker then moves 6 locations backwards. However, it stops immediately before any occupied location.
9. If, on a die roll, a marker lands on an unoccupied location that is neither a prime number nor a perfect square, then determine if the marker made at least one horizontal move followed by at least one vertical move (such as going from 6 to 8, 11 to 13, 26 to 28 ... but not 2 to 4 or 30 to 32). In that case, the marker can only land on a location on its path that is a multiple of the die roll value even if it moves a smaller distance than the die roll value. However, if all the locations in its path that are multiples are occupied, then the marker does not move from its current location. The rules listed in #7 and #8 do not apply when using #9.

					1	52			
					2	51			
7	6	5	4	3	50	49	48	47	46
8	9	10	11	12	41	42	43	44	45
17	16	15	14	13	40	39	38	37	36
18	19	20	21	22	31	32	33	34	35
					23	30			
					24	29			
					25	28			
					26	27			

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For this program, just one player marker will be moved.

Using Sample Input #1, locations 4, 6 and 8 contain an opponent's marker. The marker starting at Location #1 moves 6 spaces to Location #7. 7 is a prime so the marker should move to Location #13, but it is blocked by a marker at location 8. Therefore, it stays at location #7. It then moves 3 spaces to Location #10. The next die roll is a 5, but the move goes from at least 1 horizontal move (11 to 12) to at least 1 vertical move (12 to 13), so the marker must land on a multiple of 5. It stops at Location #15. The next die roll is a 1. The marker moves to Location #16. 16 is a perfect square and since there are no opponent's markers in the way, the marker can move 6 locations backwards to Location #10. The next die roll is a 1 and the marker moves to Location #11. 11 is a prime so the marker moves 6 locations forward to Location #17.

INPUT: There will be 5 lines of input. Each line will contain the 3 values giving the locations of the opponent's markers on the board. That will be followed by the location of the one player marker that will be moved. That will be followed by an integer, *r*, giving the number of die rolls followed by the value of those die rolls.

OUTPUT: For each line of input, print the final location number of the player's marker. If the marker lands on Location #52, print GAME OVER.

SAMPLE INPUT: <http://www.datafiles.acsl.org/2020/contest4/jr-sample-input.txt>

```
4 6 8 1 5 6 3 5 1 1
10 24 32 8 4 4 4 3 5
10 22 32 8 7 4 4 3 5 5 6
17 20 27 16 7 3 5 4 6 5 1 4
43 46 50 40 5 3 1 2 4 4
```

SAMPLE OUTPUT

1. 17
2. 23
3. 33
4. 34
5. GAME OVER

2019-2020

AMERICAN COMPUTER SCIENCE LEAGUE

Contest #4

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Junior Division - Patolli**TEST DATA****TEST INPUT:**

```
25 27 49 22 7 2 2 6 6 5 3 6
50 41 38 45 9 4 2 5 3 1 6 4 3 1
21 26 30 19 6 6 4 6 1 2 3
5 14 18 2 7 2 5 4 5 2 1 6
10 17 20 9 12 4 5 3 1 6 2 3 3 5 4 1 6
```

TEST OUTPUT:

1. 42
2. GAME OVER
3. 27
4. 15
5. 48