

Senior 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, markers will be moved alternately by the opponent and then by the player. All of the marker moves will be by the marker at the opponent's lowest numbered location and then by the player's marker at the lowest numbered location.

Using Sample #1, the opponent's markers are at Locations #3, 15 and 18. The player's markers are at Locations #5, 13 and 21. The opponent's lowest numbered marker moves first. It is at Location #3. The die roll is 4. It moves to Location #7. 7 is a prime. It tries to move 6 locations forward, but it is blocked so it stops at Location #12. The player's lowest numbered marker is at Location #5. The die roll is 5. It moves to Location #10. The move went from at least 1 horizontal move (6 to 7) to at least 1 vertical move (7 to 8), so the marker must land on a multiple of 5. It did. The next die roll is 4. The opponent's marker at Location #12 moves to Location #16. 16 is a perfect square. The marker tries to move backwards 6 locations, but it is blocked at Location #15, so it does not move. The next die roll is 4. The player's marker is at Location #10, but the move went 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 4. It stops at Location #12. The opponent's markers are at Locations #15, 16 and 18. The player's markers are at Locations #12, 13 and 21.

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 3 player's markers. That will be followed by an integer r , giving the number of die rolls. That will be followed by the value of those die rolls.

OUTPUT: For each line of input, print the sum of the opponent's marker locations and the sum of the player's marker locations. If a marker was removed from the board, it is not part of the sum.

SAMPLE INPUT:

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

3 15 18 5 13 21 4 4 5 4 4
1 11 20 3 7 16 8 3 5 6 4 6 6 6 1
18 22 15 6 10 5 6 3 2 6 5 1 4
12 20 15 40 35 30 5 1 2 3 4 5
25 20 15 12 9 6 7 6 5 4 5 3 1 6

SAMPLE OUTPUT:

1. 49 46
2. 51 34
3. 55 37
4. 54 111
5. 71 33