

Alg Prob 2.9

The Triples Game

To begin:

Each player or team is given a set of four dice and assigned a 3 x 3 array of squares to complete with numbers. Each player or team rolls a die. The player rolling the highest number plays first.

The play:

1. The first player chooses to roll one, two, three, or four dice and rolls them. The player determines the sum shown on the thrown dice.
2. The player completes the turn by writing the sum of the dice in a position in the team's array. If one die is thrown, that number is recorded.
3. The play passes to the left. The next player chooses the number of dice to be rolled, rolls, then adds and places the sum in a position in his or her team's array.
4. No number may be shifted after it has been recorded.
5. Every sum determined by the play must be placed in the player's array.
6. The play continues until all squares in the assigned arrays are filled with numbers.

Scoring:

Points are awarded as follows:

- 25 points for every addition fact in a row
- 30 points for every subtraction fact in a column
- 50 points for every multiplication fact on a diagonal

If no facts are created, no score is given. Some examples of filled arrays and their scores are shown below.

9	6	14
1	9	2
8	3	11

Addition 25 points
 Subtraction 30 points
 Total 55 points

4	11	9
7	2	3
5	9	8

subtraction 30 points
 multiplication 50 points
 total 80 points

12	6	13
3	4	7
5	2	16

Addition 25 points
 Subtraction 30 points
 Subtraction 30 points
 Total 85 points

5	9	4
7	3	10
12	6	17

Addition 25 points
 Subtraction 30 points
 Multiplication 50 points
 Total 105 points

Your Task:

Your task is to first play the game. Then strategize to win the game by using probability. In other words, use probability to devise strategies to use to win the game. Use the game grid below to play. Use the probability recording sheet if desired.

The Triples Game

**The Triples Game
Probability Recording Sheet**

Desired Number	Number of Dice thrown			
	1	2	3	4
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
Total				

Explain the strategies you would use to win the Triples game.