Decide whether each method is a fair way to choose a winner if each person should have an equal chance of winning. Explain your answer by evaluating each probability.

3. Roll a standard die. Meri wins if the result is less than 3. Riley wins if the result is greater than 3.

4. Draw a card from a standard deck of cards. Meri wins if the card is red. Riley wins if the card is black.

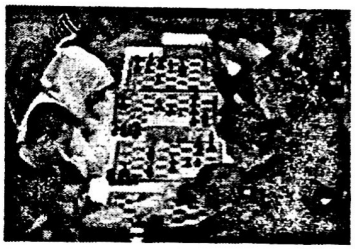
5. Flip a coin. Meri wins if it lands heads. Riley wins if it lands tails.

6. Meri and Riley both jump as high as they can. Whoever jumps higher wins.

7. Roll a standard die. Meri wins if the result is even. Riley wins if the result is odd.

8. Draw a stone from a box that contains 5 black stones and 4 white stones. Meri wins if the stone is black. Riley wins if the stone is white.

9. A chess club has received a chess set to give to one of its members. The club decides that everyone should have a chance of winning the set based on how many games they have won this season. Describe a fair method to decide who wins the set. Find the probability that each member will win it.



Member	Games Won	Probability of Winning	Member	Games Won	Probability of Winning
Kayla	30		Hailey	12	
Noah	23		Gabe	12	
Ava	18		Concour	5	

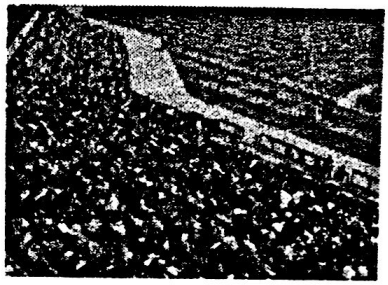
10. Owen, Diego, and Cody often play a game during lunch. When they can't finish, they calculate the probability that each will win given the current state of the game and assign partial wins. Today, when they had to stop, it would have taken at most 56 more moves for one of them to win. Owen would have won 23 of the moves, Diego would have won 18 of them, and Cody would have won 15. To 2 decimal places, how should they assign partial wins?

Represent Real-World Problems **Twenty students, including Paige, volunteer to work at the school banquet. Each volunteer worked at least 1 hour. Paige worked 4 hours. The students worked a total of 45 hours. The organizers would like to award a prize to 1 of the volunteers.**

11. Describe a process for awarding the prize so that each volunteer has an equal chance of winning. Find the probability of Paige winning.

12. Describe a process for awarding the prize so that each volunteer's chance of winning is proportional to how many hours the volunteer worked. Find the probability of Paige winning.

There are 10,000 seats available in a sports stadium. Each seat has a package beneath it, and 20 of the seats have an additional prize winning package with a family pass for the entire season.



13. Is this method of choosing a winner for the family passes fair?

14. What is the probability of winning a family pass if you attend the game?

15. What is the probability of not winning a family pass if you attend the game?

A teacher tells students, "For each puzzle problem you complete, I will assign you a prize entry." In all, 10 students complete 53 puzzle problems. Leon completed 7. To award the prize, the teacher sets a calculator to generate a random integer from 1 to 53. Leon is assigned 18 to 24 as "winners".

16. What is the probability that a specific number is chosen?

17. What is the probability that one of Leon's numbers will be chosen?

18. What is the probability that one of Leon's numbers will not be chosen?

19. Is this fair to Leon according to the original instructions? Explain.