Friends You Can Count On

Level D

Your school has a lunchtime spirit rally each month. To encourage students to attend the rally, there is a drawing for a pizza lunch. You and your 5 friends have decided that no matter whose ticket is selected, the 6 of you will choose each other to share in the pizza party. You estimate that about 150 students attend the rally.

What is the probability that you personally will win the lunch for your friends?

What is the probability that you will get to attend the pizza lunch this month?

What are the chances that none of you will get a pizza lunch this month? Show how you found your answers.

What are the chances that you and your friends will win 3 pizza lunches 3 months in a row? Explain your solution.

In your history class, you are studying exploration to the New World and are writing an essay on explorers. Your teacher has planned to celebrate Indigenous Peoples Day by choosing one essay, chosen at random, and awarding a pizza lunch for 2 to the writer of that essay. You and your best friend are in the same class and have agreed to share lunch with each other if either essay is selected. Suppose all of the 28 students have an equal chance of having their essay selected. What are your chances of having a free pizza lunch during the month of October either from the spirit rally or from the essay contest? Explain your method.

Explain how you might improve your chances of winning a free pizza lunch. Use mathematics in your explanation.