Problem of the Week Archive

Getting Ready for School – August 21, 2023

Problems

The date of the beginning of the school year has long been a topic of debate in many areas across the United States, but the trend is leaning towards starting school earlier rather than later. Basically, in the last 10 years, the percent of public schools going back to school before Labor Day has increased by 63%. It is now estimated that 75% of public schools are back in session before Labor Day, rather than after. What percent of public schools were back in session before Labor Day ten years ago, to the nearest whole percent?

School systems around the country are dealing with major teacher shortages and have not been able to find a remedy for the problem. Suppose Lincoln Middle School had 483 students and averaged 23 students per teacher during the 2022-2023 school year. If Lincoln Middle School’s student population increases by 14% this year and 10% of last year’s teachers leave, how many new teachers will Lincoln need to hire to keep its average of 23 students per teacher? Express your answer to the nearest whole number.

It’s the first day of school and you are excited that you have the same 1st period class (Introduction to Theater) as your best friend. You both walk into the classroom and see that you are the first two students to arrive and that there are 20 chairs arranged in a circle (numbered 1-20, in order, with chair #20 next to chair #1). The teacher announces that there are exactly 20 students in the class, and she will be randomly assigning a seat to each student. To do this, she will start with the first student to arrive to class and pull a number (1-20) from a hat to determine which seat the student should sit in. Then she will do the same for the second student to arrive, the third student, and so on until each student has been assigned to a seat. What is the probability that you will be sitting next to your best friend? Express your answer as a common fraction.

Check the Problem of the Week Archive next week for solutions to these and previous problems.