MATHCOUNTS® Problem of the Week Archive

Be Thankful for Math! – November 22, 2021

Problems

The Zappone family has a table that can seat eight people comfortably, which is perfect, since there will be eight people sitting down to Thanksgiving dinner. The rectangular table can seat three people on each of the longer sides and one person on each of the shorter sides. Grady, who is 3 years old and can't read yet, is asked to place a pre-printed name card at each table setting to indicate where everyone should sit. What is the probability that Uncle Rob's name card will be placed at a table setting along one of the two shorter sides of the table? Express your answer as a common fraction.

For Thanksgiving dinner, Mrs. Zappone is preparing a huge turkey, as well as potatoes, carrots, green beans, cranberry salad and dinner rolls. The problem is that sometimes, it's hard to fit all of the food you want onto your plate! Grandpa Curt takes a little bit of everything, while Grady sticks to turkey and dinner rolls. How many distinct combinations of food items are possible at the Zappone family feast, assuming everyone takes some turkey?

For Thanksgiving dessert, Mrs. Zappone baked an incredible homemade apple pie. Eight equal slices (sectors) of the round pie are cut and one piece is distributed to each person at dinner. After this is done, there is exactly 1/3 of the pie left. How many degrees are in the central angle of each person's slice of pie?