Thanksgiving! – November 23, 2020

Problems & Solutions

Mrs. Hillstead has planned a dinner for 15 people this Thanksgiving. She bought 22.5 lbs of turkey, plus potatoes, cranberry salad, rolls and all of the traditional holiday food. Unfortunately, her daughter forgot to tell her that she was bringing three of her friends. If Mrs. Hillstead wants to feed each person the same amount of turkey that she had originally planned, how much additional turkey must she purchased to accommodate these additional guests? Express your answer as a decimal to the nearest tenth.

*Mrs. Hillstead wanted to give each person 22.5 lbs ÷ 15 people = 1.5 lbs of turkey. Now, we just need to multiply the per-person amount of turkey by the number of additional people that showed up. So, 1.5 × 3 = **4.5** lbs of additional turkey needed to be purchased.*

Mrs. Hillstead realizes that she doesn't have the time to go to the store AND make the extra turkey so she decides not to purchase additional turkey. Since the 18 people evenly divide the turkey that Mrs. Hillstead already purchased instead, by what percent is each person's intended serving of turkey reduced? Express your answer as a decimal to the nearest hundredth.

*Since Mrs. Hillstead is no longer purchasing additional turkey, each person will get 22.5 lbs ÷ 18 people = 1.25 lbs per person. Using what we calculated in the previous problem, we can find that the reduction in each person's amount of turkey is 1.5 – 1.25 = 0.25 lbs. Therefore, each person's intended serving of turkey is reduced by (0.25 ÷ 1.5) × 100 ≈ **16.67**%, to the nearest hundredth.*

At dinner time, the eight adults sit at a large round table and the ten kids sit at the "kiddie" table. If Mr. and Mrs. Hillstead sit next to each other in particular seats, as shown, but the rest of the adults sit in random places around the table, how many seating arrangements are possible?

*Since Mr. and Mrs. H sit next to each other in particular seats, we are really just concerned about the other six seats. For the first seat, there are 6 potential people who could be seated; for the second seat, there are 5 people left to be seated; etc. Therefore, we can use a factorial to represent the situation: 6! = 6 × 5 × 4 × 3 × 2 × 1 = **720** seating arrangements.*

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