**Main Problem #10**

Topic: *Fractions and Decimals*

Problem: After successfully planning Carlos and Olivia’s wedding, your best friend Tristan calls you to not only be his best man, but to also plan his wedding with Shelly. Just like the last wedding, there will be 10 tables and each table has 10 seats.

Q1. If Shelly would like to reserve $\frac{3}{5}$of all seats for her family, then how many seats will be available for Tristan? Justify answer with a drawing and an explanation.

Q2. Shelly and Tristan agree to split the amount of available seats halfway. If Shelly wants to reserve $\frac{17}{25}$of all seats for her friends, then how many seats would there be left for her family? Justify answer with a drawing and an explanation.

Q3. If Tristan would like to reserve $\frac{24}{50}$of all the available seats and Shelly would like to reserve $\frac{41}{100}$seats, will there be enough seats? Justify answer with a drawing and an explanation.

\*\*Students should note that there are only 100 available.

A1. Let 100 represent 1 (or $\frac{100}{100})$. Since Shelly wants to reserve$\frac{3}{5}$of all seats, then Tristan would be left with $\frac{2}{5}$of all seats since $1-\frac{3}{5}=\frac{5}{5}-\frac{3}{5}=\frac{2}{5}$. Using our knowledge of equivalent fractions, $\frac{2}{5}⋅\frac{20}{20}=\frac{40}{100}$. Therefore, Tristan has 40 available to him.

A2. Since both people agree to split the amount of seats halfway, each person would receive 50 (or $\frac{1}{2}$of all seats). Using our knowledge of equivalent fractions, $\frac{17}{25}⋅\frac{2}{2}=\frac{34}{50}$. This means that 34 seats will be reserved for Shelly’s friends. The amount of seats left for her family are 16.

A3. Tristan’s request of $\frac{24}{50}$of all the available seats translates to 48 seats since $\frac{24}{50}⋅\frac{2}{2}=\frac{48}{100}$. Adding this fraction to that from Shelly’s request, we get $\frac{48}{100}+\frac{41}{100}=\frac{89}{100}$. Therefore, there will be enough seats to accommodate both requests.

[Drawings]

A1. All seats covered A2. 16 seats left A3. Enough seats; 11 left