## UW Math Circle October 13, 2016

1. Twenty five boys and twenty five girls are sitting on a round table. Is it possible that every person is sitting next to a boy and a girl?

2. Can you fill in the expression  $1_2_3_4 = 0$  with + or - signs to make it true? What about the expression  $1_2_3_4_5_6_7_8_9_{10} = 0$ ?

- 3. A magic square is a square array of boxes with a different number in each box, so that the sum of the numbers in each row, column, and diagonal of the box are the same.
  - (a) Is it possible to make a  $2 \times 2$  magic square?
  - (b) Make a  $3 \times 3$  magic square.

(c) Is it possible to make a magic square out of the first 36 prime numbers?