Quiz for Doron Zeilberger's Lecture at Math Leagues Camp, TCNJ, July 23, 2018, 1:30-2:20pm

NAME: (print!) ____

E-MAIL ADDRESS: (print!) ____

1. China played Soccer against Japan, and the score was

China: 5; Japan:4 .

How many possible game histories are there?

2. Out of these game-histories , how many were **boring**? How many **exciting** ones?

3. What 'bad' walk in the Manhattan lattice from $(1,0)$ to $(5,4)$ corresponds to the following walk from $(0,1)$ to $(5,4)$?

$$(0,1) \to (0,2) \to (1,2) \to (2,2) \to (3,2) \to (3,3) \to (4,3) \to (5,3) \to (5,4)$$

4. What is the unique cyclic shift in the following game history between team A and team B, where team A scored 7 goals and team B scored 6 goals, that is boring.

$$AABBBABABAAAB \quad ,$$

5. In a circular track, there are stations where the amount of gasoline (in km) is indicated in **boldface**, and the distances between them are written in *italic*.

$$\mathbf{1} \quad \mathit{3} \quad \mathbf{4} \quad \mathit{4} \quad \mathbf{3} \quad \mathit{3} \quad \mathbf{2} \quad \mathit{6} \quad \mathbf{10} \quad \mathit{4} \quad ,$$

where would you start so that you will never run out of gas?