

HINT Assignment 2 #1

The game board for Tri-Tic-Tack-Toe has a rotational symmetry of 120° . Therefore, there are only 3 different opening moves:

- playing on a corner of the outer equilateral triangle
- playing on a corner of the inner equilateral triangle
- playing between two corners on the outer equilateral triangle

To help analyze the different openings a template is given at the end of this document.

HINT Assignment 2 #2b

Make sure you find all of the moves for the first player

HINT Assignment 2 #4

You may use the following fact:

In a collection of $n + 1$ distinct integers, there are distinct integers x and y such that $x - y$ is a multiple of n .

HINT Assignment 2 #8

-If you think the answer to one of the questions is “yes” try to prove it.

For example code 1 can correct Smudged Digit: if $a \leftrightarrow \square$ then we can solve

$$\square + b + c + d + e + X \equiv 0 \pmod{10}$$

To get

$$\square \equiv -b - c - d - e - X \pmod{10}$$

The smudge \square can be corrected to $a = -b - c - d - e - X$.

-If you think the answer to one of the questions is “no” try to find a counterexample.

For example code 1 can not detect a Switch Bug. For example the switch bug could change 100009 into 010009 both of which are valid codewords.

