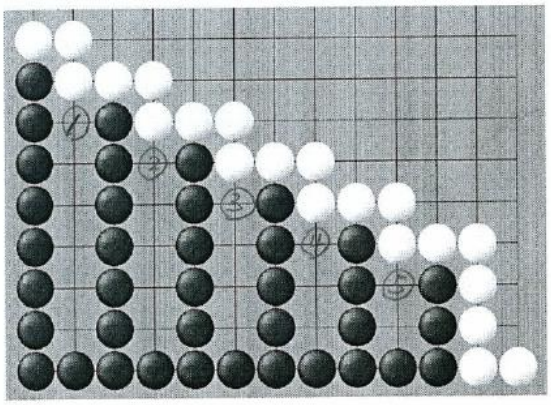
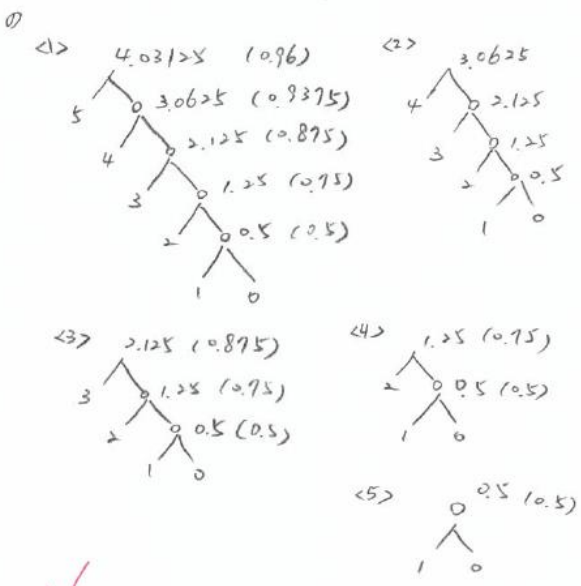
Homework #9 of the course: Theory of Computer Games.

1. For the following Go endgame (also shown in Page 7 of slides), evaluate the expected value of each slot (in terms of Black's territory) in Japanese rule. If White plays first, what is the optimum White strategy to minimize Black's territory value? For this strategy, what is the optimum territory Black can get?





② 接近: ① → ③ → ② → ④ → ⑤

③ 4+3+2+1 = 10

✓

2. For the following Triangular Nim (Normal play), please calculate its Grundy numbers.

O O
O O O

territory value? For this strategy, what is the

2. 拿一個: *2 *1 *0 *1 *1

$\{*1, *0, *2\} = *3$

$\{*1, *2\} = *0$

$\{*0\} = *1$

$\{*0, *1\} = *2$

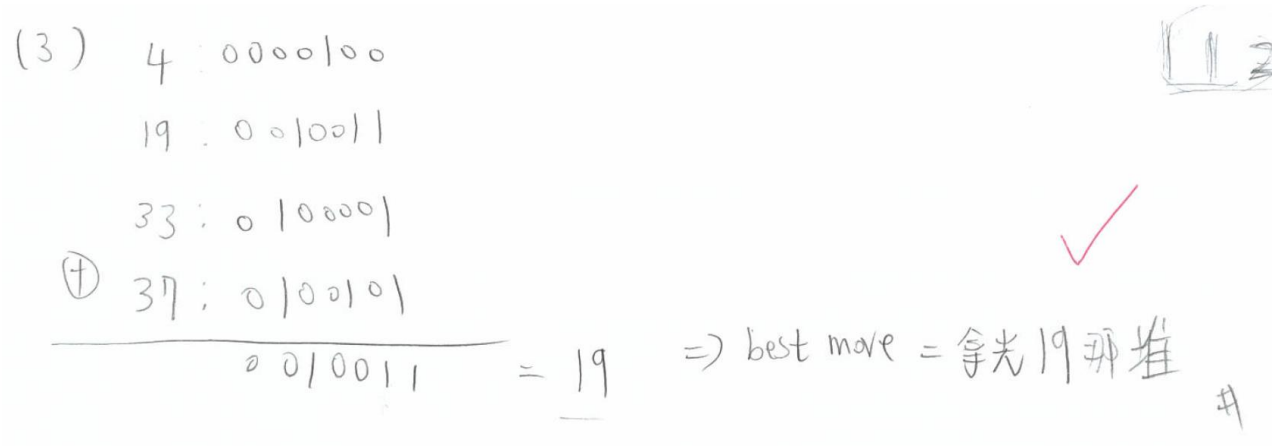
$\{*0, *2\} = *1$

拿一個: $\{*0, *3, *3, *0\}$

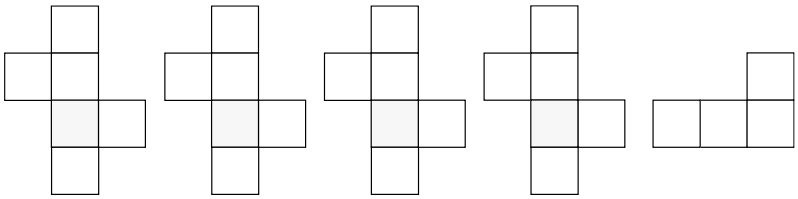
∴ grundy numbers = *4

✓

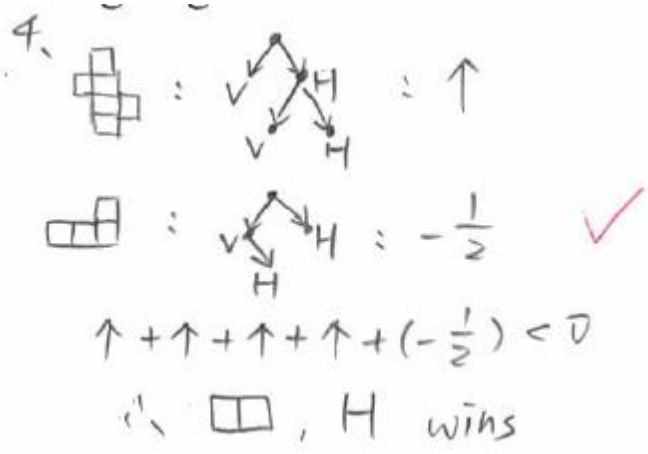
3. For a Nim game (Normal play) with three heaps 19, 37 and 33, plus the above Triangular Nim, what will you take to win?



4. For the game Domineering, assume that the game have the following fragments left. Who wins? Show it.



(Following are take-home.)



5. For a Nim game with Misère play, describe your winning strategy.