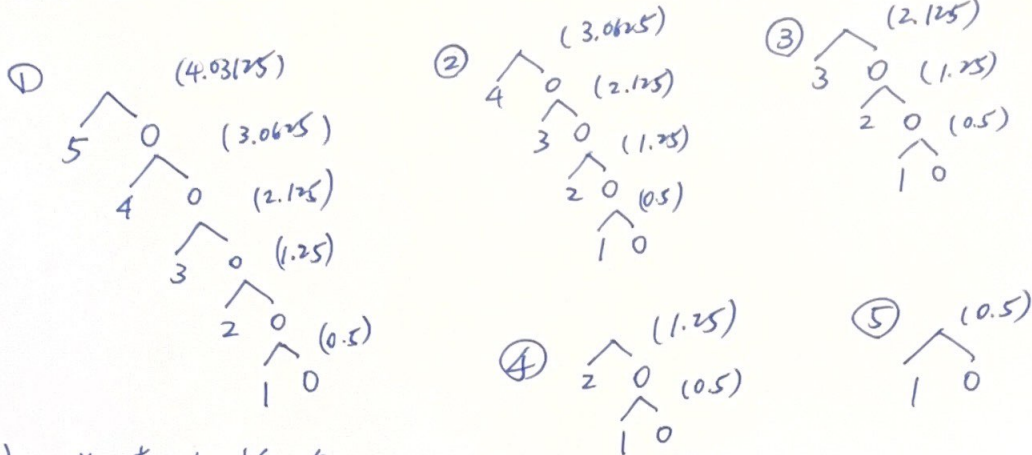


1. (1) slot 左 → 右: ①, ②, ③, ④, ⑤



(2) 白先走大格的



(3)  $4+3+2+1=10$

2.

已知:

0<sup>00</sup>00

$0 \Rightarrow *1$

$00 \Rightarrow *2$

$00 \Rightarrow *0$

$0x0 \Rightarrow *0$

$0x00 \Rightarrow *3$

$00x00 \Rightarrow *0$

$0x0x0 \Rightarrow *1$

拿2顆:  $x^000, 0^{xx}00, 0^{0x}x0, 0^{00}xx$   
 $\Rightarrow *3, *3, *3, *3$

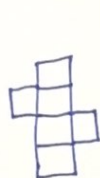
拿1顆:  $x^{00}00, 0^{x0}00, 0^{0x}00, 0^{00}x0, 0^{00}0x$   
 $\Rightarrow *1, *2, *0, *2, *1$

Ans: \*4

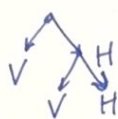
3.

$$\begin{array}{r}
 4 : 0000100 \\
 19 : 0010011 \\
 37 : 0100101 \\
 33 : 0100001 \quad (\text{XOR}) \\
 \hline
 0010011 = 19 \Rightarrow \text{拿光19那堆 (剩下的全部 XOR=0)}
 \end{array}$$

4.



V: vertical  
H: horizontal



$\uparrow$  ( $>0$ , 無限小)



$\uparrow$   $\downarrow$  :  $-\frac{1}{2}$

$\uparrow + \uparrow + \uparrow + \uparrow + (-\frac{1}{2}) < 0$

$\Rightarrow$  horizontal win (□□)

5.

Normal play: 拿最後的贏

Misere play: 拿最後的輸

用 normal play 的 strategy 玩 ( $\text{XOR}=0$ ), 若 normal play 計算出要拿  $n$  顆, 那 misere play 就拿  $n-1$  顆, 讓對方拿最後一顆。