

1) Ex: Count permutations $\varphi: [7] \rightarrow [7]$

such that $\varphi(1) = 1$

$\varphi(2) \neq 5, 7$

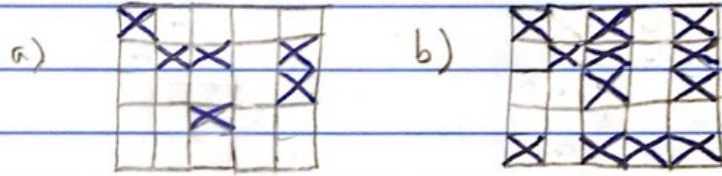
$\varphi(4) \neq 2, 5, 6$

2) Ex: Count 5 non-attacking-rooks placements

on these 5x5 chessboards with

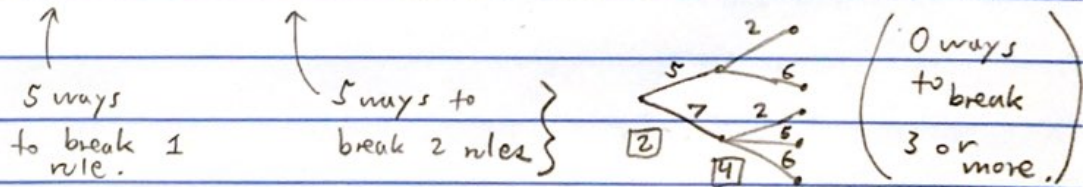
forbidden squares crossed out:

(5 rooks, only 1 in every row & column.)



WORK ON BOARD

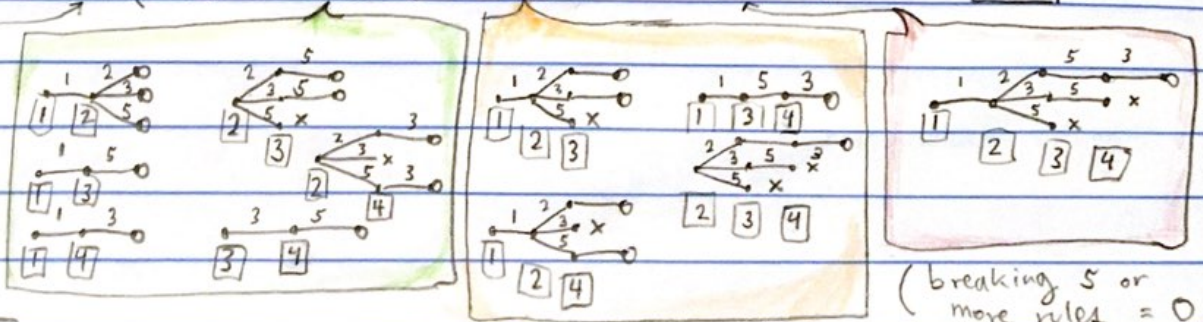
1) = $6! - 5(5!) + 5(4!) - 0 + 0 - 0 = 240$



2a) $\varphi(1) \neq 1, \varphi(2) \neq 2, 3, 5, \varphi(3) \neq 5, \varphi(4) \neq 3$

= $5! - 6(4!) + 10(3!) - 6(2!) + 1(1!) = 25$

6 rules



b) 0 Assume one exists! ✗