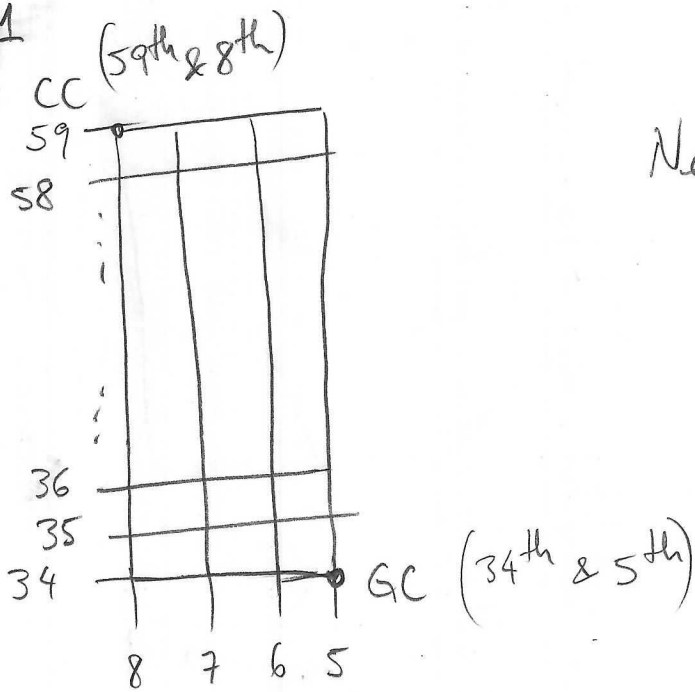


#1



Need to traverse:

3 East blocks

25 North blocks

In other words, choose when to walk each of the 3 blocks east, among the total 28 blocks that will be walked

$$\text{Ans: } \binom{28}{3} = \binom{28}{25} = 3,276 \text{ ways}$$

#2 MATHEMATICS  
(MTHMTC S) AEAI

$$\frac{7!}{2!2!} \cdot \frac{5!}{2!} = \frac{7! \cdot 5!}{8} = 75,600 \text{ words}$$

$\left\{ \begin{array}{l} 7 \text{ consonants,} \\ 2 \text{ of which are alike (M)} \\ 2 \text{ of which are alike (T)} \end{array} \right.$ 
 $\left\{ \begin{array}{l} 5 \text{ letters (including 1 "combo-letter" MTHMTC S)} \\ 2 \text{ of which are alike.} \end{array} \right.$

$$\text{Ans: } \frac{7! \cdot 5!}{2!2!2!} = 75,600 \text{ words}$$