

Solutions to HW 1

#1 COLLEGE

7 letters, 2 L's, 2 E's

$$\binom{7}{2,2} = \frac{7!}{2!2!} = \underline{\underline{1,260}}$$

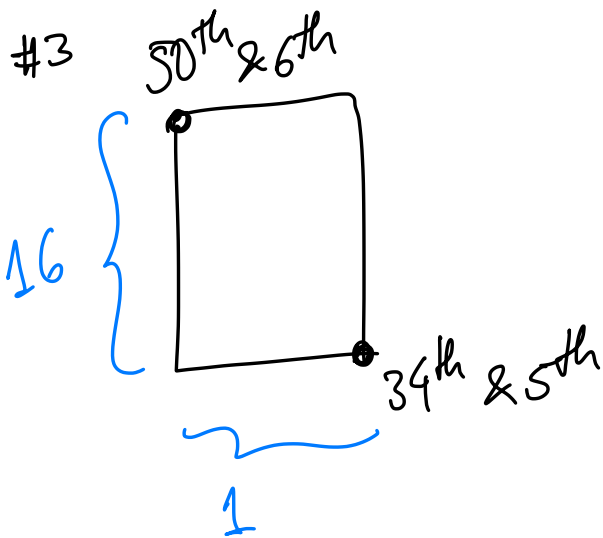
#2 COLL(EE)G

6 symbols, 2 L's

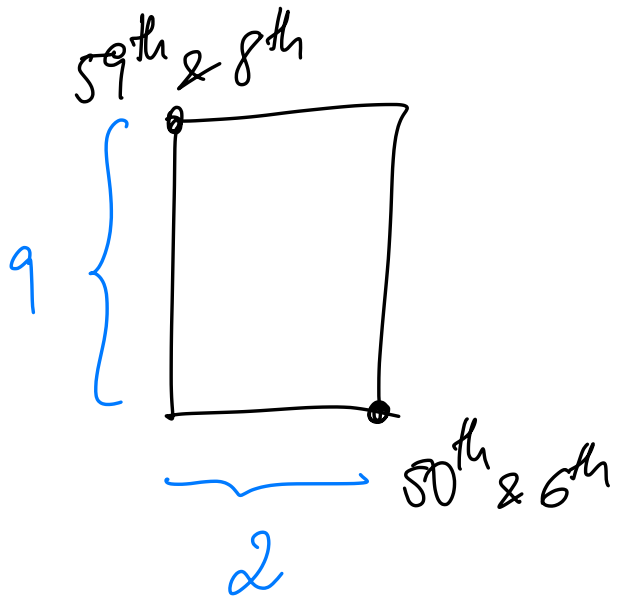
$$\frac{6!}{2!} \cdot \frac{2!}{2!} = \underline{\underline{360}}$$

including "combo-letter" EE
(2) permutations within EE

#3



$$\binom{17}{1} = 17 \text{ paths}$$



$$\binom{11}{2} = 55 \text{ paths}$$

$$\text{Total: } \binom{17}{1} \binom{11}{2} = \underline{\underline{935}} \text{ paths.}$$

$$\#4 \binom{14}{4,5,3,2} = \frac{14!}{4!5!3!2!} = \underline{\underline{2,522,520}} \text{ ways.}$$