1. U N U S U A L

1 2 3

1/5 letters is U → other 4 $\binom{4}{4} = 1$

2/5 letters is U → other 3 $\binom{4}{3} = 4$

3/5 letters is U → other 2 $\binom{4}{2} = 6$

$6 + 4 + 1 = 11$

1v = $5! = 120$

2v = $\frac{5!}{2!} \times 4 = 240 = 480$

3v = $\frac{5!}{3!} \times 6 = 120$

2. $\binom{13}{2}\binom{4}{2}\binom{4}{2}\binom{44}{1} = 18 \times 6 \times 6 \times 44 = 123552$

3. $\binom{21}{5} + \binom{20}{5} = 20349 + 15504 = 35853$

4. 2 nodes: 1^2 $^1 2$ → 2

3 nodes: $^1{}_2 3$ $1^2 3$ $^1 2^3$ $1^2{}_3$ $1^3{}_2$ → 5

4 nodes: $^1{}_2{}^3 4$ $^1{}_2 3 4$ $1^2{}_3 4$ $1^2 3^4$ $1^2{}_3{}^4$ $1^2{}_3 4$ $1^2 3^4$

$^1{}_2{}_3{}^4$ $^1{}_2 3 4$ $^1{}_3{}^4$ $^1 2^4{}_3$ $1^3{}_2{}^4$ $1^4{}_2{}^3$ $1^4{}_3{}^2$ $^1{}_3{}^4$

→ 14

root node

1 → 3

2 → 1 and 2

3 → 2 and 1

4 → 3

5 + 2 + 2 + 5 = 14

5 nodes:

root:

1 → 4

2 → 1 & 3

3 → 2 & 2

4 → 3 & 1

5 → 4

14

5 +

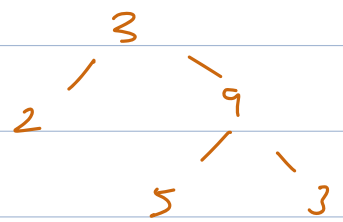
4 + = 42

5 +

14

12 nodes

root → 3



l = 2

r = 9

↓

5 (42 pos)

2 + 42 + 5 = 49

5.