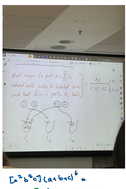
1729023204_262__7-343-trees-and-lagrange-inversion

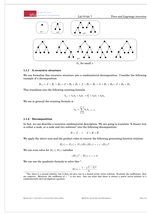
Wednesday, October 16, 2024 9:37 AM



$$\binom{6}{2,2,1} = \frac{6!}{2!\,2!\,1!} = 60$$

how to count
unary binary tree
plane

$$[a^0b^0c^0](a+b+c)^6 =$$
$$(a+b+c)\cdot$$
$$(a+b+c)\cdot$$
$$(a+b+c)\cdot$$
$$(a+b+c)\cdot$$
$$(a+b+c)\cdot$$
$$(a+b+c)\cdot$$
$$a^0b^0c^0 + \dots +$$

$$\text{ie } (a+b+c)^3 = \sum_{i,j,k=0}^{3} \sum_{\substack{j,k=0\\ j+k=i}}^{i} \binom{i}{j,k} a^i b^j c^k$$

$$= \sum_{\substack{(i,j,k)\\ i,j,k\geq 0\\ i+j+k=3}} \binom{n}{i,j,k} a^i b^j c^k$$