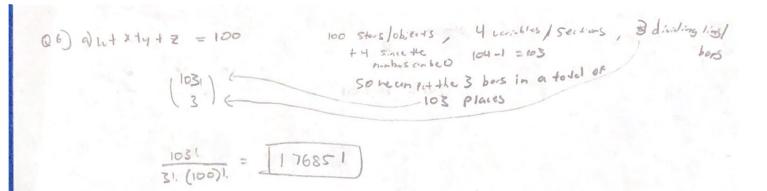
9 * 9 * 8 * 7 = 4536 10-99 = 9 * 9 = 281 diggs digits 1-9 L salignes 7 digits left be conclose without repending 100-904 > 9 #9 #8

reconclose room lodges to when conclose = 648 dist chase from (0-0), Little reporting 1-100 10-993 100-9946 1000 -9946 minis 1 because 9 + 81 + 648 + 4536 = | 5274 digits Le ort repent Q5) (x+y)" = = (n) x yn-k a) (3x-2y) a= \(\frac{1}{2} \left(\frac{1}{2} \right) \left(-2\right) \right) \left(-2\right) \right) \left(-2\right) \right) \left(-2\right) \right) \right) \left(-2\right) \right) \right) \right) \left(-2\right) \right) compre to x 6 y 3 1 = 3 E (3) (-213. y 3. 36. x6 = 9 (20-8.36.x6.43 = 84 ·-8 · 3 · x 6 · 4 3 = [-489888 x 6 3 post) from ar equation (1)-(1)+(1)-(3)+...+11"(1) =0, he can set the borichles xy such that x=- 1 and Y=1. Plugging these into the binomial theorem, he call get: (-1+1) h = \(\frac{1}{2}\) \(\left(\frac{n}{2}\) \(\left(-1)\) \(\left(\frac{n}{2}\) \\\ \left(\frac{n}{2}\) \\\ \left(\frac{n $S_{[n]}^{[n]} = {n \choose 1} + {n \choose 2} - {n \choose 3} + ... (-1)^{n} {n \choose 2}$ and expended form This we have proved it the biromic theorem that the equation: Stree. I



Vsins what we simplified, we would have [P4 (94) solutions) since the her problem is a student partition and isomorphic to 6 a).

The Justide of the equation, or represents the different number of hars of Positions in ordered objects one of three colors: RED, BLUE, or GREEN The Teletts ide of the equation, $\sum_{l=0}^{\infty} 2^{ll} \binom{n}{lk}$, can represent the lk lobitions we chose that one NOT RED, in which there are $\binom{n}{lk}$ hards to do this. This means that there could be 2^{lk} mass to color the lk objects either BLUE or GREEN since RED is no long to a griffing. The remaining of n—lk lobitions he would have parties lk Objects have been a colored BLUE or GREEN, must be then the lk Objects have been a colored that the total number of NOTRED objects can be $0 \le lk \le h$, so the LHS is $\sum_{k=0}^{\infty} 2^{lk} \binom{n}{lk}$. This, he have shown that

 $7/2) \qquad {n \choose 2} {n-2 \choose k-2} = {n \choose 1k} {n \choose 2} \qquad algebraic {n \choose m} {n-m \choose 1k-m} = {n \choose k} {n \choose m}$ looks like exporte: n! k! n! (n-h)! m! (n-h)! m! (n-h)! (n-h)! Written Proof: he can pove that the LHS and RIHS of the combinatorial identity are equal to the same set If we first consider a situation where a group of size in people herd to to choose a committee of size k people as well as 2 coleades who one included members of the committee. We am sha the the LHS ad RHS both represent the number of ways that the committee and colectes can be closed hith the TRHS. (2) (2), the IC Committee members are dosen from the n group of people, (2), while then the 2 10 headers are chosen from the K committee members. (2) On the LHS) (2) ("in), the 2 coleaders ore originally closen from the group of a people (2). Sine the Zicaleders are part of the connective, then we can choose the remaining members for the committee some or k-2 members out of nn - 2 grap of people. (n-2). This, he can observe that the LHS ad RHS both cont the different number of ways that the committee and collecters can be chosen since they count the same set and are equal