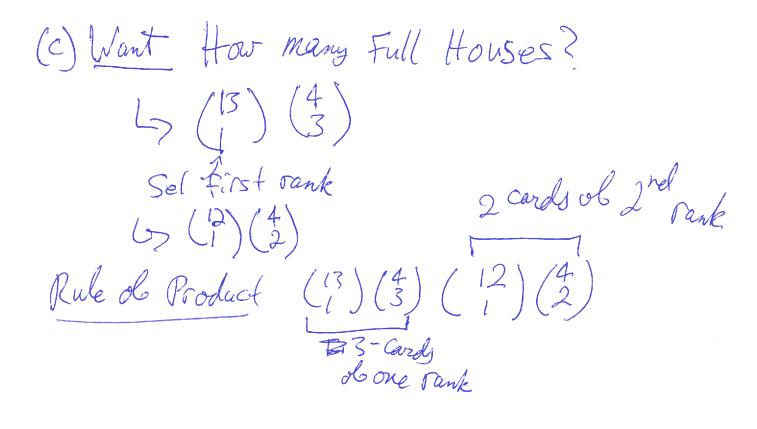
" Recall Combinations are subsets of & element set. Order does not matter. 13:55 Elems are distinct. The binomial coefficien $\binom{n}{k}$ (or C(n,k)) counts the number of kelen subsets or n-element set. Ex 5 dilberent stocks, want 3 stocks. How many ways to select 3 Stocks? $A \left(\frac{5}{3}\right) \left(\text{or } \mathcal{L}\left(\frac{5}{3}\right)\right)$ Ex 5 different Stocks, want 2. 3 dibbered metall, want 2. 8 dilberent bond options, want 5. Select Stocks: $(\frac{5}{2}) = \frac{5!}{2!(5-2)!} = \frac{5!}{2! \cdot 5!} = \frac{5!}{2! \cdot$ Want to Select Portfolio Rule of Product $\binom{5}{2}$ $\binom{3}{2}$ $\binom{8}{5}$

Poker Hands 67 Standard deck of playing cords has 52 cards. Ly 4 Suits (Lee, Diamond, Clubs, Spades)
Ly 13 ranks/values (Ace, 2, 3, ..., 10, J, Q, K) Et How many 5-card hands exist? (52) Ex Full House has 673 cards ob one rank 672 cards ob another rank (a) 3 Q's, 2 A's. (3) ways to pick Q's (4) ways to pick A'S Rule of Broduct (3) 2) Such hands (b) 3 Q's, need to select second rank: Ly (43) wasys to Pick Q'S G(12)(4) ways to pick two cards of gick Ind pank Rule ob Broduct (3) (12) (4) Such hands



Ex A one-pair has two cards of the same rank, and three cards of three different ranks (all different than the first rank).

Select remaining 3 ranks
Rule ob Product (2) (3) (4) (4) (1) Such
hands

b) How many one -pairs?,
Ly Select Pairi (13) (2)

Ly Select Remaining 3 cards: (12) (4) (4) (1) (1)

So (13) (4) (12) (4) 3 one -hands