(iii) With replecment.

① $P \Rightarrow n^r = 3^3 = \boxed{27}$ ways

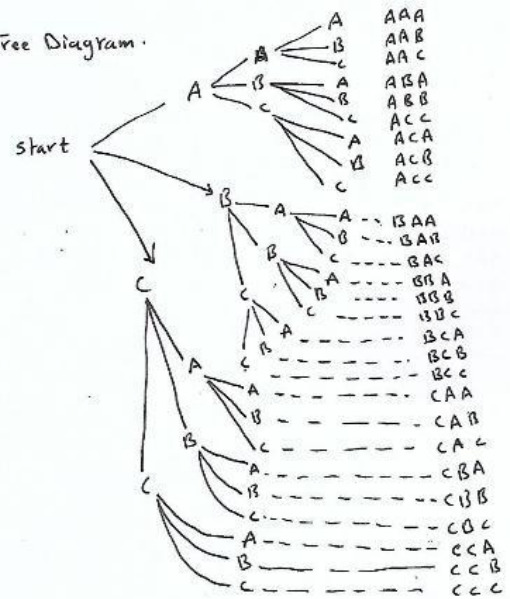
or ① $P^n_r + P^n_{n-1} = P^n_{r+n-1} = P^3_{2+3-1} = 6+$

② Arrangment method.

1	2	3
3	3	3

$3 \times 3 \times 3 = 3^3 = \boxed{27}$ ways.

③ Tree Diagram.



27 ways

iv) 2 only letters with replacement.

① Arrangment method.

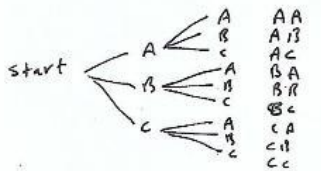
1	2
3	3

$3 * 3 = \boxed{9}$ ways.

② permutation

$n^r = 3^2 = \boxed{9}$ ways.

③ Tree Diagrams



9 = عدد الطرق

How many 2-digit numbers can be formed from the digits (2, 4, 5, 7)

if (i) Repetation are not allowed. (ii) with replacement.

(iii) 4-digit only. without replacement.

(iv) with replacement.

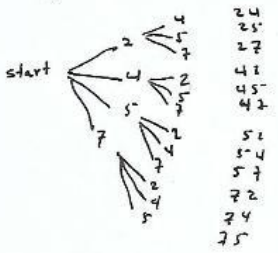
(i)

① | 4 | 3 |

$4 \times 3 = 12$ ways

② $P_r^n = P_2^4 = \frac{4!}{(4-2)!} = \frac{4!}{2!} = 4 \times 3 = 12$ ways.

③



24
25
27
42
45
42
52
54
57
72
74
75

= 12 ways

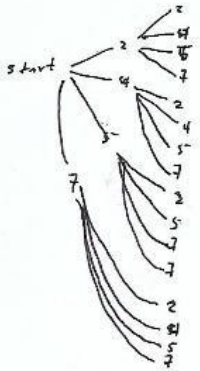
(ii) with replacement.

① | 4 | 4 |

$4 \times 4 = 16$ ways

② $n^r = 4^2 = 4 \times 4 = 16$ ways.

③



= 16 ways

(iii) 4-digit only without replacement

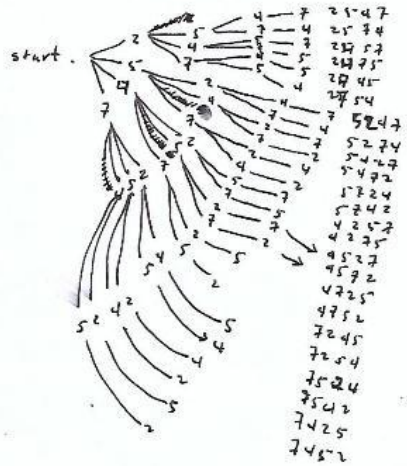
① | 4 | 3 | 2 | 1 |

$4 * 3 * 2 * 1 = \boxed{24}$ ways.

② $P^n_n = \frac{n!}{0!} = n! = 4! = 4*3*2*1 = \boxed{24 \text{ ways}}$

or $P^n_n = n! = 4! = 24.$

③ tree diagram.



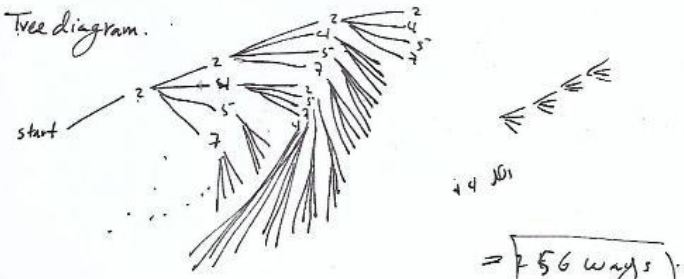
(iv) With replacement. 4-digit only

① | 4 | 4 | 4 | 4 |

$4 * 4 * 4 * 4 = 16 * 16 = \boxed{256 \text{ ways}}$

② $n^r = 4^4 = 4*4*4*4 = 16.16 = \boxed{256 \text{ ways}}$

③ Tree diagram.



$\Rightarrow \boxed{256 \text{ ways}}$

سؤال فارغ

EX The number 1, 2, 3 and 4 are written seperately on four slips of paper. The slips are then put into a hat and mixed. A pearson draws two slips from the hat, one after the other without replacement. Find the number of ways?

EX/ In how many ways can 3 white, 4 red and 4 black balls be arranged in a row if similarly Colored balls are unordered from each other.