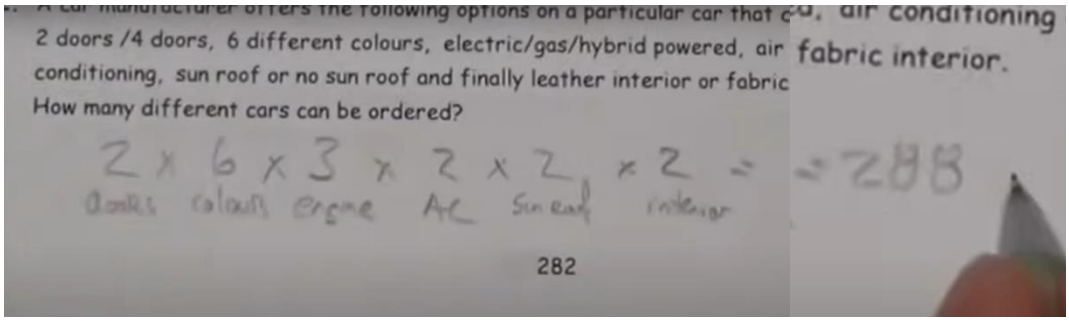
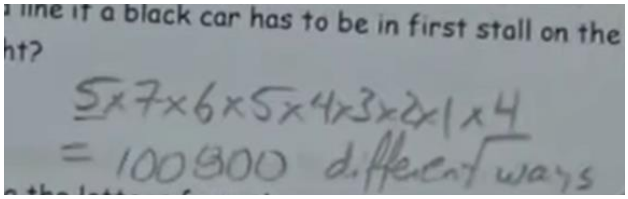
fundamental principle of counting

exercises

2. A car manufacturer offers the following options on a particular car that can be special ordered: 2 doors /4 doors, 6 different colours, electric/gas/hybrid powered, air conditioning or no air conditioning, sun roof or no sun roof and finally leather interior or fabric interior.
How many different cars can be ordered?

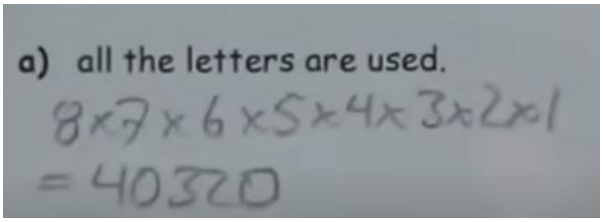


3. In how many ways can five different black cars and four different red cars be parked next to each other in a line if a black car has to be in first stall on the left and a red car has to be in the last stall on the right?

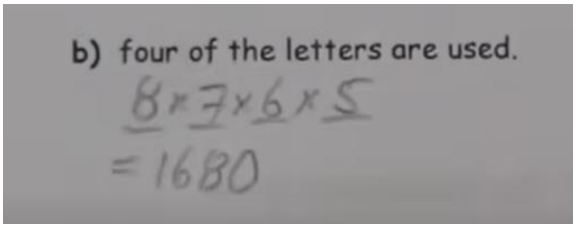


4. Using the letters from the word **EQUATION** determine the following number of arrangements if:

a) all the letters are used.

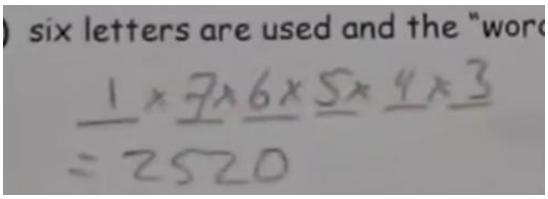


b) four of the letters are used.

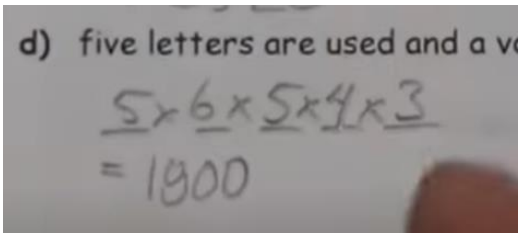


---

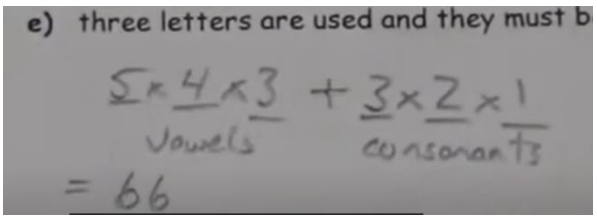
c) six letters are used and the "word" must begin with a **Q**.



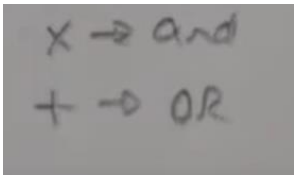
d) five letters are used and a vowel must be at the front and a consonant at the back.



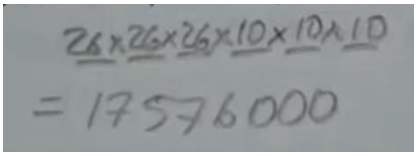
e) three letters are used and they must be made up of all consonants *or* all vowels.



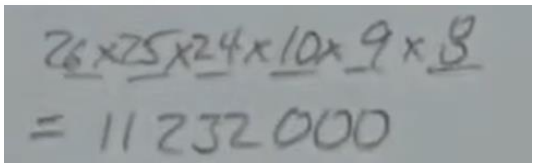
remarking



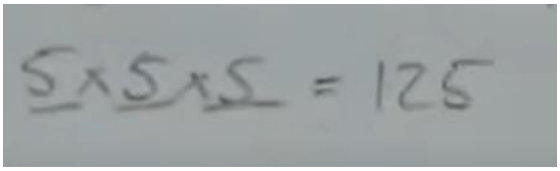
5. a) How many license plates can be formed with 3 letters followed by 3 numbers?



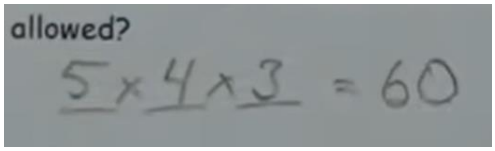
b) How many license plates can be formed with 3 different letters followed by 3 different numbers?



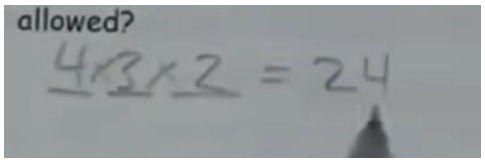
6. a) How many 3-digit numbers can be formed from the following numbers: 2, 3, 6, 7, 8.



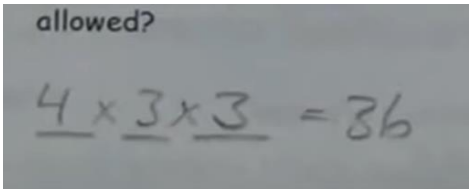
b) How many 3-digit numbers can be formed from the same group of numbers if digits cannot be used more than once?



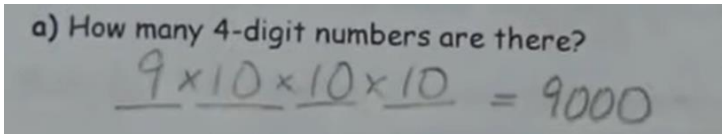
c) How many 3-digit ODD numbers can be formed from the same group of numbers if digits cannot be used more than once?



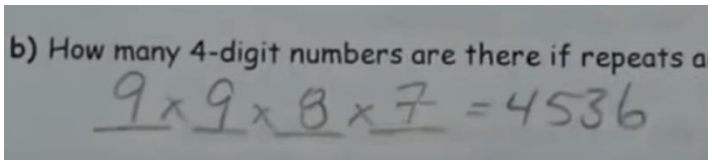
d) How many 3-digit EVEN numbers can be formed from the same group of numbers if digits cannot be used more than once?



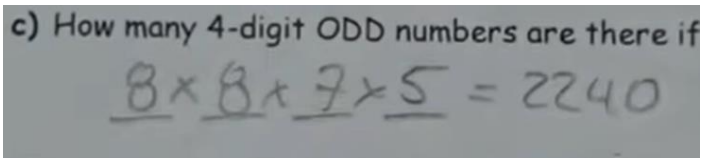
7. a) How many 4-digit numbers are there?



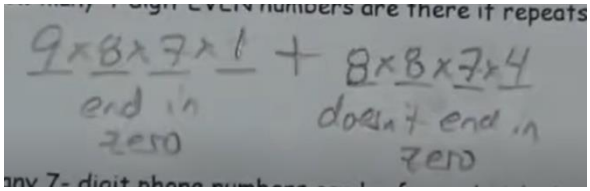
b) How many 4-digit numbers are there if digits cannot be used more than once?

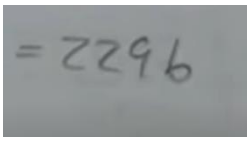


c) How many 4-digit ODD numbers are there if digits cannot be used more than once?

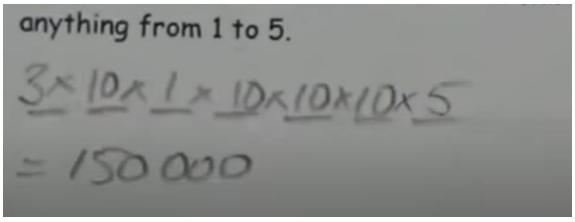


d) How many 4-digit EVEN numbers are there of if digits cannot be used more than once?

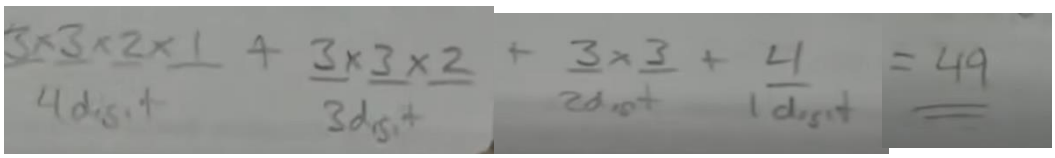




8. How many 7- digit phone numbers can be formed with the following restrictions: The first number must be either a 4, 6 or 2. The second and third number must match each other. The last digit can be anything from 1 to 5.



9. Using the digits 0, 2, 3, 4. How many numbers can be formed if digits cannot be used more than once?



https://www.youtube.com/watch?v=J1OVlrCdk6s