

## COUNTING

DISTINCT

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$m$  BOYS AND  $n$  GIRLS ARE  
ARRANGED IN A ROW, FIND THE  
NUMBER OF ARRANGEMENTS WHEN

- i) NO RESTRICTIONS
- ii) NO BOYS ARE ADJACENT
- iii) THE  $n$  GIRLS FORM A SINGLE BLOCK.
- iv) A PARTICULAR BOY AND A PARTICULAR GIRL  
MUST BE ADJACENT

FIND THE NUMBER OF ODD INTEGERS  
BETWEEN 3000 AND 8000 IN WHICH  
NO DIGIT IS REPEATED.

FIND THE NUMBER OF COMMON POSITIVE  
DIVISORS OF  $10^{40}$  AND  $2^{30}$ .

HOW MANY DIVISORS WILL  
 $n$  HAVE IF  $n = p^a q^b$

CAN YOU GENERALISE THIS?