

NATIONAL UNIVERSITY OF SINGAPORE
DEPARTMENT OF MATHEMATICS
MA2214 COMBINATORIAL ANALYSIS

TUTORIAL 5: SUGGESTED SOLUTIONS

SEMESTER II, AY 2010/2011

- 1.
2. If we consider Kate and William as one entity. There are $B(8)$ ways to partition the children into playgroups where Kate and William are in the same group. By the subtraction principle the answer we want is $B(9) - B(8)$

$$\begin{aligned} B(9) &= \sum_{k=0}^n B(k) \binom{n}{k} \\ \implies B(9) - B(8) &= \sum_{k=0}^{n-1} B(k) \binom{n}{k} = 17007. \end{aligned}$$

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- 7.