Hints / Solutions to Exercise sheet 1

Curves and Surfaces, MTH201

Question 1 *Method 1:*
$(7-1)!$ ways of arranging the students
P_5^7 ways of arranging the teachers
Total: $6! \times P_5^7 = 6! \times \frac{7!}{2!} = 3 \times 5! \times 7!$.

Method 2:
$(5-1)!$ ways of arranging the teachers
P_5^7 ways of arranging the students to separate teachers

Method 3:
Excluding the cases where at least two teachers are together.
P_2^5 ways of treating two teachers as one unit.
$(7+5-1)! - (7+4-1)! \times P_2^5$