

**Spring 2024, Math 579: Preliminary Problem Set 3**  
**Due: Thursday, February 8th, 2024**  
**Combinatorial Proofs**

**Preliminary problems.** These problems should be completed before discussion on Thursday.

(P1) Invent a question to which the answer is  $2^n - 1$ .

(P2) Invent a question to which the answer is  $\binom{n+1}{n-1}$ .