

# LAMC Winter Meeting 17 Nov

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1. Explain in words why induction proofs allow us to confidently prove an infinite amount of claims at once. (Don't forget to mention base case)

2. Prove that  $(11^n - 6) | 5 \forall n$

3. Prove that  $2^n > 2n \forall n$

4. Prove  $a^1 + a^2 + a^3 + \dots + a^n = \frac{a^{(n+1)} - 1}{a - 1}$