

# 187 §3- DISCRETE MATHEMATICS - Quiz 7

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1. Recall that  $n! = 1 \cdot 2 \cdot 3 \cdot \dots \cdot n$ . Prove that if  $n > 2$ , then  $n < n!$ .
2. Prove by induction that each of the following is a tautology:

$$\begin{aligned} & (p \rightarrow p) \\ & p \rightarrow (p \rightarrow p) \\ & p \rightarrow (p \rightarrow (p \rightarrow p)) \\ & p \rightarrow (p \rightarrow (p \rightarrow (p \rightarrow p))) \\ & \vdots \end{aligned}$$