"Ideas..." problems for tutorials week 25

I-25.1. Prove by contradiction that the set $\{\frac{n-1}{n} \mid n \in \mathbb{N}\}$ does not have the greatest element.

I-25.2. Use truth table to determine whether the statement $\neg(P \Rightarrow Q) \land Q$ is a tautology, or a contradiction, or neither. (Recall that negation sign only applies to the nearest bracket/statement.)

I-25.3. Prove by contradiction that $\log_2 3$ is an irrational number.