Sample Exam

• Write out truth table for $P$ and $Q$ and the truth table for $-P$ or $-Q$.

• Write the negative of the following statement as an “and” statement. $P(n)$: $n$ is an odd integer or $n$ is divisible by 4.

• Prove the statement that if $n$ is an integer such that $n^2$ is not divisible by 3 then $n$ is not divisible by 3.

• Prove by induction that if $n$ is a positive integer then $6^n + 4$ is divisible by 5.

• Write the power set of $\{a, b, c\}$

• Prove or disprove the following statement: $\exists m \in \mathbb{Z}, \forall n \in \mathbb{Z}, m \leq n$. 