

Quiz 2

Instructions: Show your work and explain every step.

- (1) (12 points) Prove the following using the weak form of Mathematical Induction:

$$1 + 2 + 2^2 + \cdots + 2^{(n-1)} = (2^n) - 1, \forall n \in \mathbb{Z}^+.$$

- (2) (8 points) Prove the following by resolution

(1) $(p \longrightarrow q) \vee r.$

(2) $\overline{q \vee s}$

Conclusion: $p \longrightarrow r.$