

The majority of the credit you receive will be based on the completeness and the clarity of your responses. **Show all of your work and justify your solutions as much as possible.**
This is a 15 minute quiz and has 1 questions, for a total of 10 points

- (10 points) 1. Let $r \in \mathbb{R} \setminus \{1\}$. Use induction to prove that $a + ar + \cdots + ar^{n-1} = \frac{a(1-r^n)}{1-r}$ for every positive integer n .