Mathematics 300

Quiz 14   **Name:**_____

You must show your work to get full credit.

1. Prove: if r is a rational number, then so is $\dfrac{r^2 - 2}{r^2 + 1}$.

2. What is the sum $S = 1 + 3 + 3^2 + \cdots + 3^n$. $S = $ _____