

**MATH 166**  
**SUMMER 2012**  
**QUIZ 15**

1. Use induction to show that

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \cdots + \frac{1}{2^n} = 1 - \frac{1}{2^n}.$$

2. Use induction to show that the sequence of numbers

$$\sqrt{10}, \sqrt{10 + \sqrt{10}}, \sqrt{10 + \sqrt{10 + \sqrt{10}}}, \dots$$

is increasing.