Math Circle Problems for week 6

1. Please see problem 6 from Feb 28.

2. Prove the last step of AM-GM inequality: If $(a_1 + a_2 + ... + a_n)/n \geq \sqrt[n]{a_1 a_2 ... a_n}$ for every non-negative real numbers $a_1, a_2, ..., a_n$, then $\frac{a_1+a_2+...+a_{n-1}}{n-1} \geq \sqrt[n-1]{a_1 a_2 ... a_n}$

3. Simplify the sum to a unique fraction:

$$\frac{1}{1+\sqrt{3}} + \frac{1}{\sqrt{3}+\sqrt{5}} + ... + \frac{1}{\sqrt{2n-1}+\sqrt{2n+1}}$$