MATH 55 - HOMEWORK 3

Due in class on Wednesday July 12, 2017

5.1 4, 6, 10, 18, 32, 54, 79

5.2 8, 12, 17, (51 from the Supplementary Exercises on page 381)

5.3 4*c*, 4*d*, 12, 14, 20, 25, 51*a*

Challenge [Not to be handed in]

1 [5.1.63] Let $a_1, \ldots, a_n$ be positive real numbers. The **arithmetic mean** of these numbers is defined by $A = (a_1 + \cdots + a_n)/n$ and the **geometric mean** of these numbers is defined by $G = (a_1 \cdots a_n)^{1/n}$. Use mathematical induction to prove that,

$$\frac{a_1 + \cdots + a_n}{n} \geq (a_1 \cdots a_n)^{\frac{1}{n}}.$$