MATH471: HOMEWORK #1

ALEX IOSEVICH

Please do the following problems and turn them in on Monday, September 19:

Page 13, problems 14,15
Page 34, problems 6,9,10
Page 40, problems 14,15
Page 47, problems 24,25.

In addition, prove from scratch that if $a_j, b_j, c_j \geq 0$, then

$$\sum_{j=1}^{\infty} a_j b_j c_j \leq \left(\sum_{j=1}^{\infty} a_j^3 \right)^{\frac{1}{3}} \cdot \left(\sum_{j=1}^{\infty} b_j^3 \right)^{\frac{1}{3}} \cdot \left(\sum_{j=1}^{\infty} c_j^3 \right)^{\frac{1}{3}},$$

provided that each factor on the right hand side is finite.