Some arguments using Fourier analysis can be expressed equally clearly through cyclic groups $\mathbb{Z}/n\mathbb{Z}$ or through the group $\mathbb{R}/\mathbb{Z}$, and some arguments cannot. This talk will discuss the relative strengths of the two settings, using $B_h[g]$ sets as an example. The set $S$ is a $B_h[g]$ set if the coefficients of $\left( \sum_{a \in S} z^a \right)^h$ are bounded by $h!g$, and the main question is to bound the size of a $B_h[g]$ set contained in $\{1, 2, \ldots, n\}$.

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