

### MATH 423: HOMEWORK 8

- 0.1. Determine the Haar measure and the modulus function  $\Delta(g)$  on  $B = \begin{bmatrix} * & * \\ 0 & * \end{bmatrix} \subset GL(2, \mathbb{R})$ .
- 0.2. Determine all (continuous) group characters  $\chi : GL(2, \mathbb{R}) \rightarrow \mathbb{C}^\times$ .
- 0.3. Assume  $T$  is a torus. Prove that  $\widehat{T} = T^*$ .
- 0.4. Assume  $(\pi, V)$  is a unitary representation of  $SU(2)$ . Prove that  $\pi_*(E_+)^* = \pi_*(E_-)$ .