

Physics 745 - Group Theory
Homework Set 18
Due Friday, March 20

1. The group \mathcal{G} is one-dimensional, so the elements are described by a single real number x that runs from $-\infty$ to ∞ , and has coordinate multiplication rule

$$\mu(x, y) = \frac{x + y}{1 - xy}$$

- (a) What is e , such that $\mu(x, e) = \mu(e, x) = x$?
- (b) Check the associative rule explicitly.
- (c) Work out the left or right measure for this group (they will be the same), and find the volume of this group. Is this group compact?