

1. * Let $G = M_2(\mathbb{R})$ and

$$A = \begin{pmatrix} 1/2 & \sqrt{3}/2 \\ -\sqrt{3}/2 & 1/2 \end{pmatrix}.$$

Find $\langle A \rangle$ and determine the order of A .

2. Find the order of every element in $\mathbb{Z}_{18}$.

3. Find the order of every element of $U(30)$.

4. Draw the lattice of subgroups of D_4 .