No. 3

1. **(3 points)** Operations.
2. **(3 points)** Determine the subgroups of the group $(\mathbb{Z}_8, +)$, and then draw the Hasse diagram of its subgroup lattice.
3. **(3 points)** Is
$$U = \{A \in M_2(\mathbb{R}) \mid \det(A) \geq 0\}$$
an ideal of the ring $(M_2(\mathbb{R}), +, \cdot)$? Justification.

Plus 1 point for free and bonus points.