Modern algebra I, spring 2017. Quiz 3

Name:_____ UNI: _____

Check the boxes that are followed by correct statements.

☐ If $\psi : G \longrightarrow H$ is a homomorphism and $K \subset G$ a subgroup, then $\psi(K)$ is a subgroup of H.

☐ Any subgroup H of $\mathbb{T}$, the group of unit complex numbers under multiplication, is normal in $\mathbb{T}$.

☐ Any subgroup of the symmetric group S_3 is normal in S_3.

☐ For any two subgroups H, K of a group G, the set

$$HK = \{hk \ : \ h \in H, k \in K\}$$

is a subgroup of G.

☐ Any subgroup H of a group G is the kernel of a homomorphism from G to some group K.

☐ Any homomorphism from $\mathbb{Z}$ to $\mathbb{Z}_6$ is surjective.