

Name: .....

Let  $G$  and  $G'$  be groups and let  $f: G \rightarrow G'$  be a group homomorphism.

- 1] Write the definition of  $\ker(f)$  (the *kernel* of  $f$ ).
- 2] Prove that  $\ker(f)$  is a subgroup of  $G$ .
- 3] Prove that  $\ker(f)$  is normal.