Please PRINT your name ______________________________________

No calculators, cell phones, computers, notes, etc.

Make your work correct, complete and coherent.

Please take a picture of your quiz (for your records) just before you turn the quiz in. I will e-mail your grade and my comments to you. I will keep your quiz.

The quiz is worth 5 points. The solutions will be posted on my website later today.

Quiz 7, November 17, 2022

Let G be a finite group, and let n be a divisor of the order of G. Prove that if H is the only subgroup of G of order n , then H must be normal in G.

Answer: Let g be a fixed, but arbitrary, element of G. Observe that gHg^{-1} is a subgroup of G of order n. The hypothesis ensures that H is the only subgroup of G of order n. It follows that $gHg^{-1} = H$. Indeed, $gHg^{-1} = H$ for all $g \in G$; therefore H is a normal subgroup of G.