# FALL 2026 - ABSTRACT ALGEBRA 1 - TEST 4B

Take-home. All references permitted. Questions 1-5 worth 20 points each Due 11:59 pm Tue Dec 1 to tbeatty@fgcu.edu. Please put your name in the transmitted filename and get a delivery receipt. Late submissions risk "I" grade for semester.

1) Find groups $H \leq K \leq G$, such that $H \triangleleft K$ and $K \triangleleft G$, but $H \not\triangleleft G$. Explain your answer.

2) Prove for groups $A, B$ that $A \oplus B/A \oplus \{e\} \cong B$

3) Find all isomorphism classes for an abelian group of order $5184$

4) If $G$ is an abelian group with an order that admits $35$ isomorphism classes, what could be the minimal order of $G$?

5) What is the smallest odd integer that can be the order of a non-abelian group? Explain your answer.

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