

# Math 113(4) - Comments for HW5

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Some general comments:

1. Please use staplers or clips, not just fold the left-upper corner of papers!
2. Try to write well! - maybe this will be harder than the first one...
3. If you can, try to use  $\LaTeX$ .
4. For questions that requires proofs, I almost not give any partial credits.

## Problem 1

- For a), you only need to give a right answer, and I gave full credits for them. Here are some common wrong answers for this question:
  - Not all  $\phi_a : \mathbb{Z} \rightarrow \mathbb{Z}/12\mathbb{Z}, n \mapsto an$  are surjective homomorphisms. 1 point.
  - There are 4 such homomorphisms which are determined by  $\phi(1) = 1, 5, 7, 11$ , not only  $a \mapsto a \pmod{12}$ . Also 1 point.
- For b), you have to prove that the only such homomorphism is trivial one.

## Problem 2

No point for strange arguments.

## Problem 3

## Problem 4