

Homework 1: Math review

Submission policy. Submit your answers on paper **before** the class starts on **Monday, Jan. 27, 2020**. No late submissions accepted. Your submission **MUST** include the following:

1. Your answer to the required question(s). Hand written answers are fine but please make sure they are readable.
2. Your name should be printed at the very top of the paper. No loose paper, please.

Administration. This assignment will be graded by the GTA.

Practice Questions – NOT graded – Do NOT submit these.

Textbook questions 1.2, 1.3, 1.4, 1.5, 1.6.

Questions that will be graded. Total Points 100

Exercise 1. Part (a) [50 points].

Consider the following sets $A = \{\emptyset, k, 4\}$, where \emptyset denotes the empty set, $B = \{3, 2, 4\}$, and $C = \{x \mid x \text{ is an integer, and } 1 < x < 5\}$. Find the cardinality of the following sets:

1. A
2. $\{A, C, w\}$ where A and C are the sets defined above
3. $A \times A$ (cross-product)
4. $B \times C$ (cross-product)
5. 2^C (powerset)

Part (b) [50 points]. Using the same set definitions given in Part (a), write explicitly the results of:

1. $A \times A$
2. 2^C
3. $B \times C \times (A \cap B)$

Note: If you have questions about the homework or the material covered in class you should: (a) Come to office hours, OR (b) Post on Piazza. Try not to use private posts/emails to ask technical questions. The rest of the class is probably also interested in your question, so make it public!