

CS 130 Homework 7

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Practice Problems

You are not required to turn these in.

Gersting, 6e: Section 3.1, Exercises 1–15 & 50–60;

Book of Proof: Section 1.5, Exercises 1–4; Chapter 8, Exercises 1–31

Turn-in Problems

Let A , X , and Y be arbitrary sets.

1 Prove the following.

$$(A \subseteq X \wedge A \subseteq Y) \iff A \subseteq X \cap Y$$

2 Disprove the following.

$$(A \subseteq X \vee A \subseteq Y) \iff A \subseteq X \cup Y$$

3 Using 1, prove the following.

$$\wp(X \cap Y) = \wp(X) \cap \wp(Y)$$

4 Using 2, disprove the following.

$$\wp(X \cup Y) = \wp(X) \cup \wp(Y)$$

5 Prove or disprove the following.

$$\wp(X \times Y) = \wp(X) \times \wp(Y)$$