

Homework # 1

due: 2/07/07 midnight, by email to either one of the TAs.

Make the re. for your email "HW1-CSE355"

Put your name and ASU ID on the Homework.

No handwritten homework!

1. Let a relation R on $\mathbb{N} \times \mathbb{N}$ be defined by

$$(m, n) \in R \Leftrightarrow m, n \text{ have no common divisor.}$$

Is R an equivalence relation? Explain. Note that "1" does not qualify as a divisor here.

2. Define recursively the relation R on $\mathbb{N} \times \mathbb{N}$ given by

$$(m, n) \in R \Leftrightarrow n + m = \text{odd.}$$

3. In the Venn diagram applet "and another one" on the class materials page, move the sets A, B, C such that they do not overlap. What set theoretic expression defines the area outside of all three sets?

4. Give an example (if it exists) of a set with higher cardinality than the real numbers. If no such set exists, why not? If you find the answer on the web, you may give the source.