

Discrete Mathematics
Dr. Amin Witno
Exam 2
31-12-2002

1. Let $A = \{1, 3, 5, 7\}$. Give an example of a relation R from A to A which is
 - a) an equivalence relation
 - b) a partial order but not total order
 - c) not reflexive, not symmetric, not anti-symmetric
 - d) a one-to-one function, not transitive
 - e) a function, symmetric, not onto
2. $A = \{1, 2, 5, 6, 8, 20\}$ and $R = \{(a, b) | a \text{ divides } b\}$. Draw the Hasse diagram.
3. Find the formula for the recurrence relation defined by

$$a_0 = 2$$

$$a_1 = 1$$

$$a_n = 6 a_{(n-1)} - 9 a_{(n-2)}$$

4. Two numbers x and y are chosen at random from 0 to 9, repetition allowed. What is the probability that either $x > 5$ or $y < 5$?