

CSI 35, Homework 2 on section 9.3.

Due by Wed, Sept 21.

Here are 7 questions for you to try, with some from the textbook. Write all your working out and answers on your own notepaper - no need to write the questions. Please use lots of space.

It is very important that you show clearly any work you had to do to get your answers. Just writing the answer down with no work shown is usually not enough.

- (1) Page 596, Question 2, part (d) only
- (2) Page 596, Question 4, part (b) only
- (3) Suppose the matrix for the relation R is given by

$$M_R = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}.$$

Decide which of these properties the relation R has: reflexive, symmetric or antisymmetric. Give a short explanation for each.

- (4) For the same M_R as in the last question, compute the matrix product $M_R \cdot M_R$ and then the Boolean product $M_R \odot M_R$. Use this to decide if R is transitive.
 - (5) Page 597, Question 26
 - (6) For the relation given by the digraph in the last question, decide which of these properties it has: reflexive, symmetric, antisymmetric or transitive. Give a short explanation for each.
 - (7) For the relation given by the digraph in Question 28 on page 597 (containing vertices a, b, c, d), decide which of these properties it has: reflexive, symmetric, antisymmetric or transitive. Give a short explanation for each.
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If you understand the homework questions then you will be able to do the exam questions. You can also try the other questions listed on the syllabus to get extra practice. If you don't understand a question or get stuck, please talk to me after class or come to my office hours so I can help.