

Assignment 6

Due: Thursday, July 27, 2017, upload before 11:30pm

1) (20 pts.): Which of these relations on the set of all people are equivalence relations?

Determine the properties of an equivalence relation that the others lack.

1. $\{(a, b) \mid a \text{ and } b \text{ are the same age}\}$
2. $\{(a, b) \mid a \text{ and } b \text{ have the same parents}\}$
3. $\{(a, b) \mid a \text{ and } b \text{ share a common parent}\}$
4. $\{(a, b) \mid a \text{ and } b \text{ have met}\}$

2) (10 pts.): Which of these relations on the set of all people are partial orderings?

Determine the properties of a partial ordering that the others lack.

1. $\{(a, b) \mid a \text{ is no shorter than } b\}$
2. $\{(a, b) \mid a \text{ and } b \text{ do not have a common friend}\}$

3) (10 pts.) Solve $a_n = 7a_{n-1} - 12a_{n-2}$ with $a_0 = 4$ and $a_1 = 9$

4) (10 pts.) Solve Problem 3 page 822.

5) (10 pts.) Which is more likely: rolling a total of 8 when 2 dice are thrown or rolling a total of 8 when 3 dice are thrown?

Note: As you will have read on the course website, you need to submit your answers typed and as one PDF file named LastName.FirstName.6.PDF before the due date stated above. Follow the the template given at <https://www.cs.purdue.edu/homes/amahmoo/cs182summer2017/homeworksolutiontemplate.pdf>.