

April 3, 2002

cs330 – Discrete Structures

Spring 2002

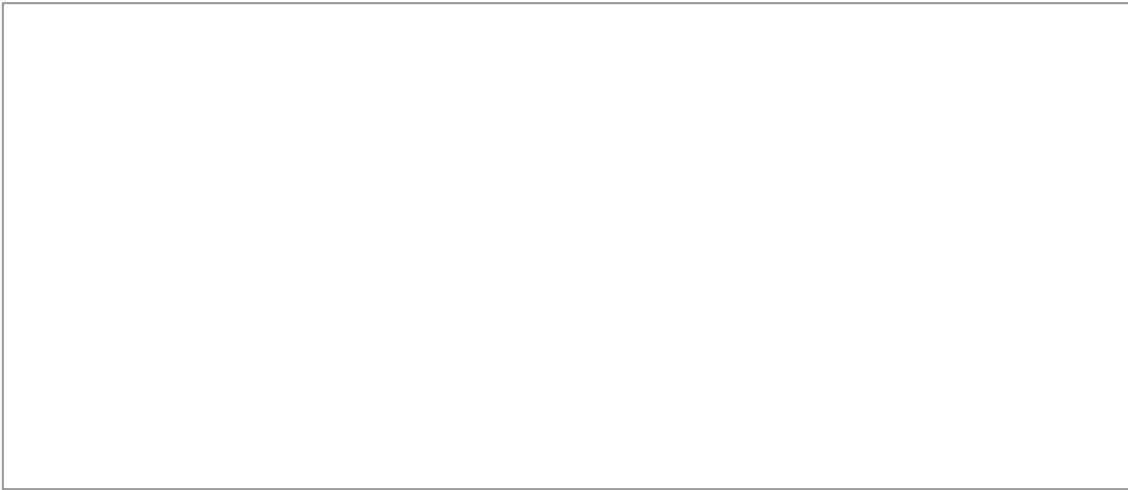
Exam #2

Closed books/notes

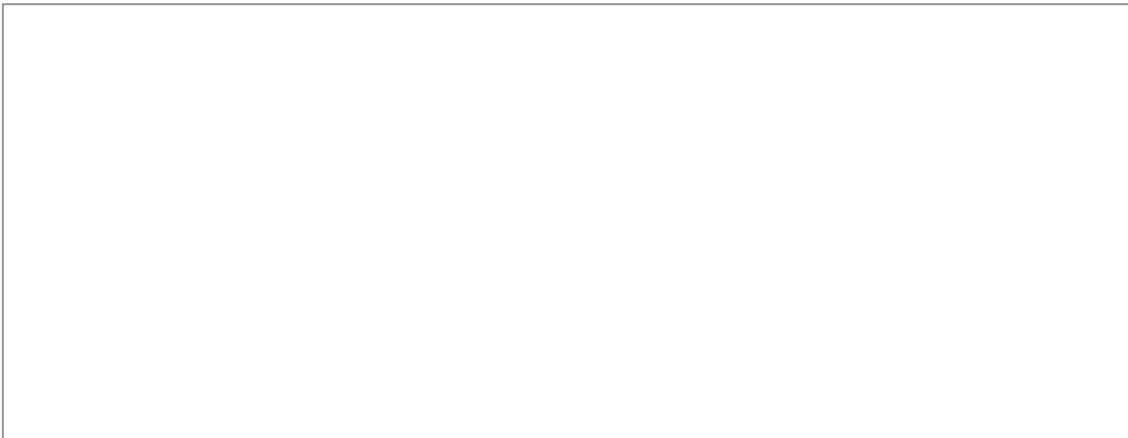
Starts: 8:35 am**Ends:** 9:35 am**Name:** _____ (please print)**ID:** _____

Problem	Max points	Your mark	Comments
1	5		
2	5		
3	10		5+5
4	10		5+5
5	15		5*3
Total	45		

1. Consider the set S of all the numbers between zero and one whose fractional part consists of all 7's. Decide whether the set S is countable or not.

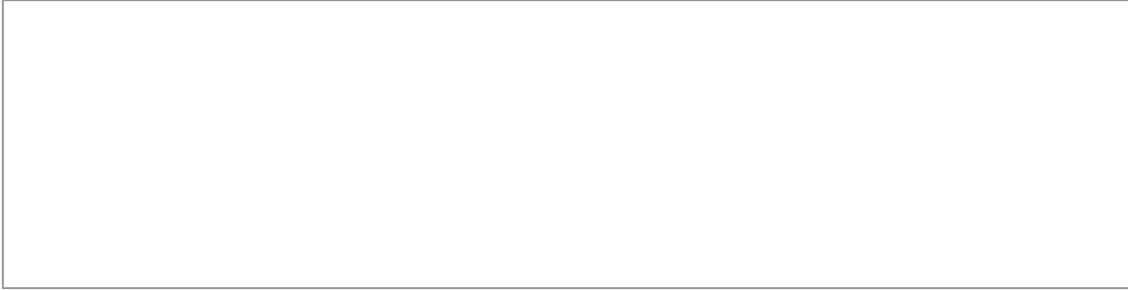


2. Which of the following functions grows faster?
a) $n^{1,000,000} + 1$
b) $1.001^n - 1$

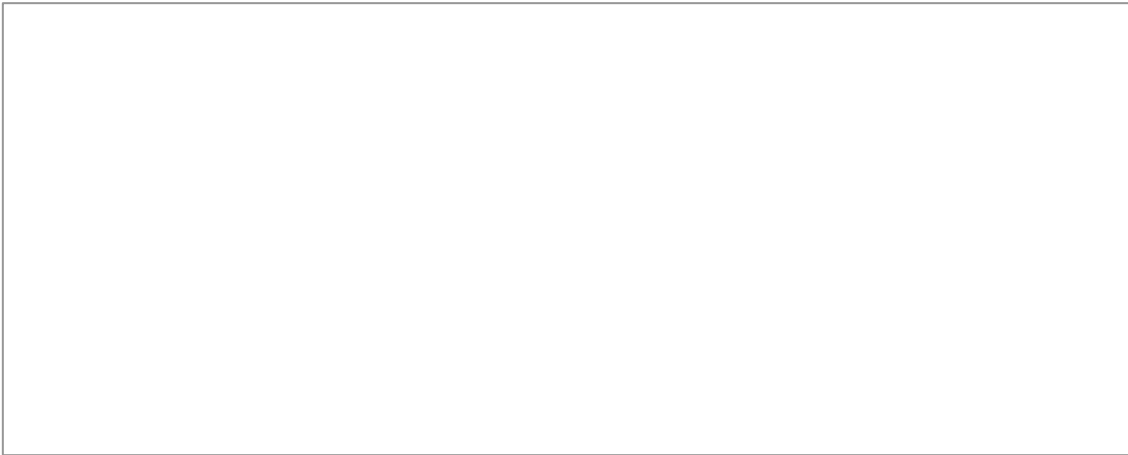


3. Assume a relation R on the set S of all two-letter strings over the alphabet $A = \{a, b\}$, where two strings are related if and only if the leftmost letter in the strings is the same.

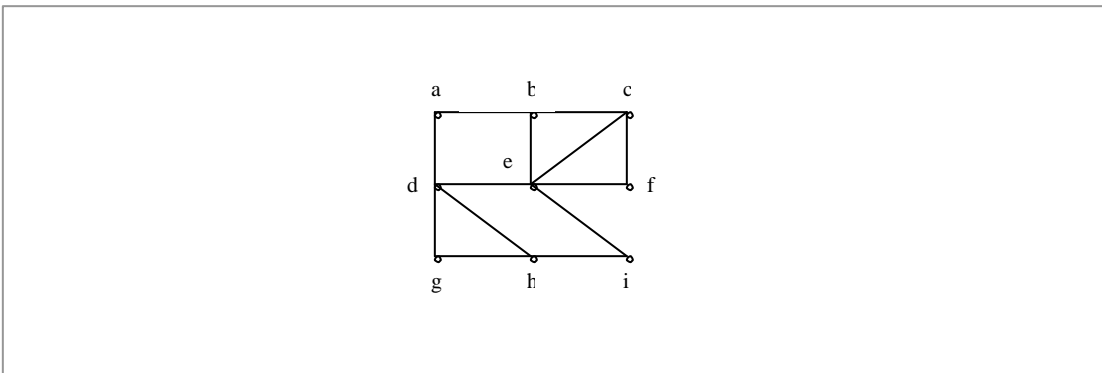
- a) Show the set representation of R



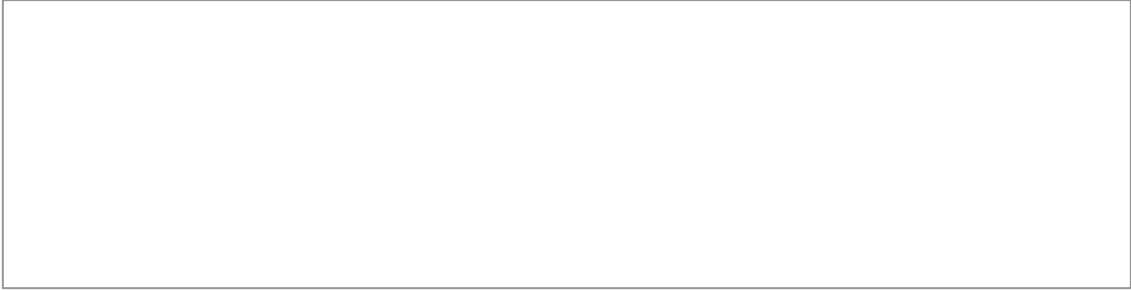
b) Is R an equivalence relation? If it is, then show the partition it creates on S



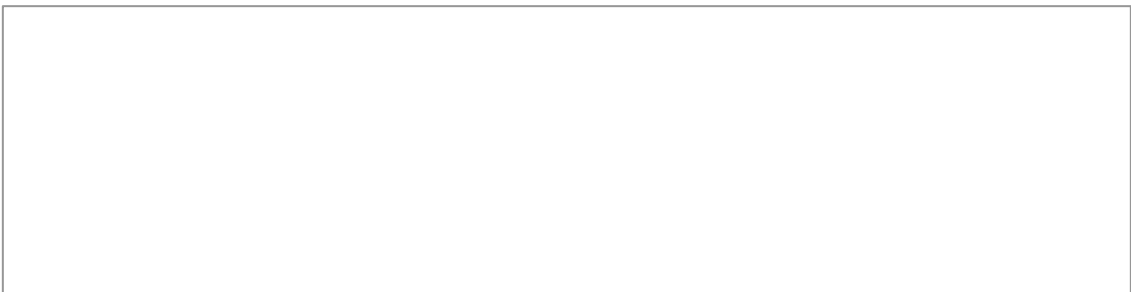
4. Assume the graph below:



a) Is there an Euler path in the graph?

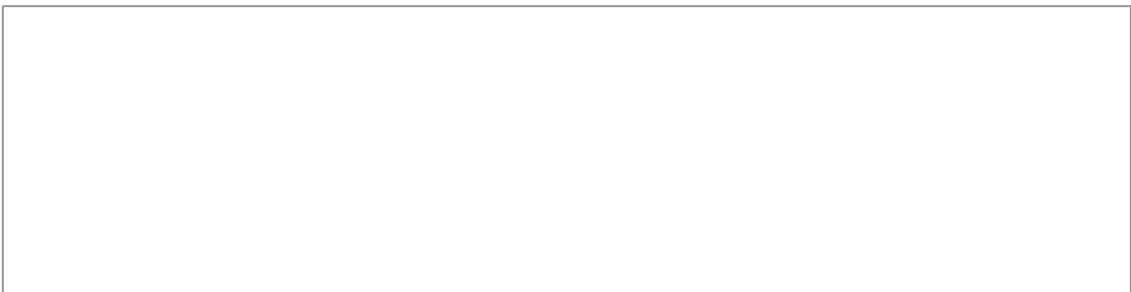


b) Find a breadth-first traversal of the graph starting with the vertex c . Use lexicographic ordering.

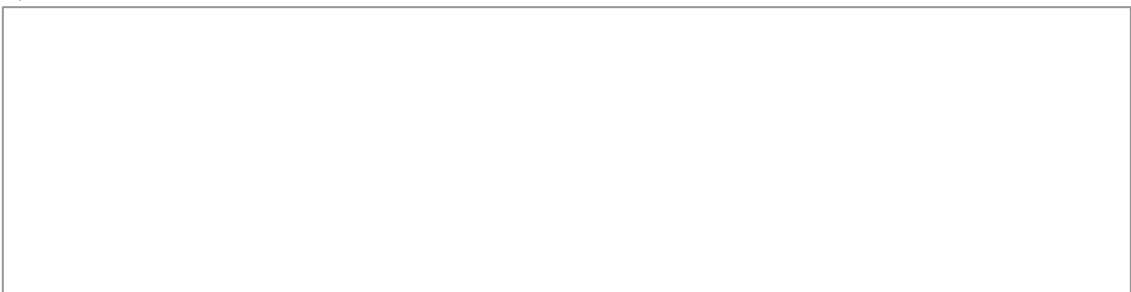


5. Give a definition for:


a) Partition of a set



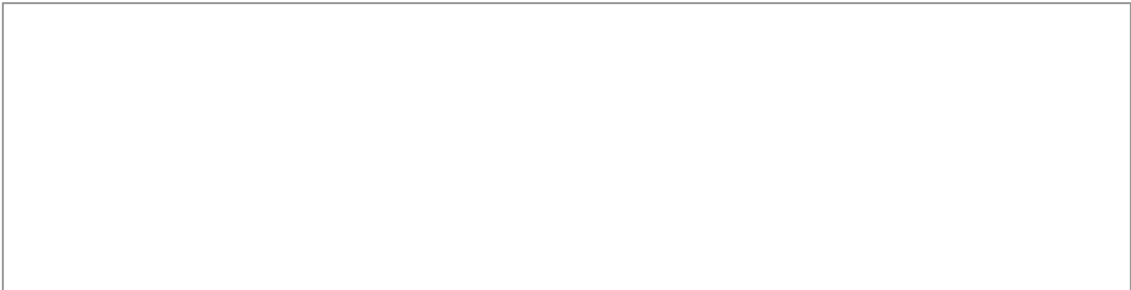
b) Function



c) Connected graph



d) Unsolvable problem



e) Hamilton cycle in a connected graph

