

Lecture 13: Quiz

Name:

Problem 1

The computer on the ground floor of the Harvard science center is called:

- a) ENIAC
- b) Bomba
- c) Colossus
- d) Mark I

Problem 2

What is experimental mathematics?

- a) Assist as a mathematician in an experimental lab.
- b) Search for relations and theorems using computers and calculations.
- c) Publish theorems which are likely to be true.
- d) Take results from experimental science and rewrite them mathematically.

Problem 3

Which first significant digit appears more often in Benford's law

- a) the digit 5 appears most often as it is the average.
- b) the digit 1 appears most often.
- c) the digit 9 appears most often.
- d) all digits appear with the same frequency

Problem 4

Who is considered the first programmer?

- a) Blaise Pascal
- b) Ada Lovelace
- c) Charles Babbage
- d) Steve Jobs

Problem 5

When was Pascal's calculator built? a) 1542

- b) 1642
- c) 1742
- d) 1842

Problem 6

Which of the following decision problems are known to be in NP?

- a) Graph isomorphism
- b) Factoring integers
- c) Integer partition problem
- d) Is n a prime number?

Problem 7

What is a Turing machine?

- a) A device to measure complexity.
- b) A quantum computer.
- c) A difference machine by Babbage.
- d) A special Abacus.

Problem 8

What is Moore's law ?

- a) The number of transistors on a microchip double every 2 years.
- b) It is necessary to replace a computer every 2 years.
- c) Moore's law is that there is no Moore's law.
- d) Every two years, the size of a computer shrinks by a factor of 2.

Problem 9

We have looked at the Goldbach problem. What was this problem?

- a) There infinitely many prime twins.
- b) Every even integer is a sum of two primes.
- c) The golden ratio can be approximated by rational numbers.
- d) The problem of finding the statistics of the first significant digit of the primes.

Problem 10

Who showed that there are uncomputable decision problems?

- a) Charles Babbage.
- b) Alan Turing
- c) Pierre Fermat
- d) Kurt Goedel