HKOI Training

$ami \sim wkc$

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Course information

My contact

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Course Schedule

Course webpage : `http://hkoi.mathdb.org`

Previous training material: `http://game.integate.net/hkoi/`

Almost every Saturaday, from $10am$ to $12pm$

Location: Computer Room 10 of Methodist College

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27-Feb, 6-Mar, 13-Mar, 27-Mar

10-Apr, 17-Apr, 24-Apr

8-May, 15-May, 22-May, 29-May

5-Jun, 26-Jun

3-Jul (Examination)

No lesson on 20-Mar, as I will be at PuiChing Middle School.

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There will be around three quizzes and one examination.

Homework problems are related to all you learnt in school.

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NO Calculator is allowed!!!

Topics - Math

- Discrete Mathematics

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    1. Propositional logic

Topics - Math

- Discrete Mathematics
  1. Propositional logic
     (a) Statements - negation, conjunction, disjunction and condition
     (b) Truth values - TRUE , FALSE
     (c) Boolean algebra
     (d) Recursive definition

Topics - Math

- Discrete Mathematics
    1. Propositional logic
    2. Mathematical induction

Topics - Math

- Discrete Mathematics
  1. Propositional logic
  2. Mathematical induction
     (a) well-ordering principle
     (b) identity for sum of powers
     (c) identity for sum of geometric sequence

Topics - Math

- Discrete Mathematics
    1. Propositional logic
    2. Mathematical induction
    3. Set theory, relations and functions

Topics - Math

- Discrete Mathematics
  1. Propositional logic
  2. Mathematical induction
  3. Set theory, relations and functions
     (a) equivalence relation and classes
     (b) domain, codomain and image

Topics - Math

- Discrete Mathematics
  1. Propositional logic
  2. Mathematical induction
  3. Set theory, relations and functions
  4. Number theory

Topics - Math

- Discrete Mathematics
  1. Propositional logic
  2. Mathematical induction
  3. Set theory, relations and functions
  4. Number theory
     (a) Divisibility
     (b) Division algorithm and Euclidean algorithm
     (c) Modular arithmetic - Addition, subtraction and multiplication.
     (d) The congruence classes modulo n
     (e) Modular arithmetic - Inverse (division)

Topics - Math

- Discrete Mathematics
  1. Propositional logic
  2. Mathematical induction
  3. Set theory, relations and functions
  4. Number theory
  5. Abstract algebra

Topics - Math

- Discrete Mathematics
  1. Propositional logic
  2. Mathematical induction
  3. Set theory, relations and functions
  4. Number theory
  5. Abstract algebra
     (a) Units of $\mathbb{Z}_p$
     (b) Fermat's little theorem
     (c) Chinese remainder theorem
     (d) Euler's phi-function

Topics - Math

- Discrete Mathematics
  1. Propositional logic
  2. Mathematical induction
  3. Set theory, relations and functions
  4. Number theory
  5. Abstract algebra
  6. Counting

Topics - Math

- Discrete Mathematics
  1. Propositional logic
  2. Mathematical induction
  3. Set theory, relations and functions
  4. Number theory
  5. Abstract algebra
  6. Counting
     (a) Permutation
     (b) Combinatorial binomial coefficient
     (c) Combination
     (d) Pigeonhole principle
     (e) Inclusion-exclusion principle

Topics - Math

- Discrete Mathematics
  1. Propositional logic
  2. Mathematical induction
  3. Set theory, relations and functions
  4. Number theory
  5. Abstract algebra
  6. Counting
  7. Sequences and recurrence relations

Topics - Math

- Discrete Mathematics
  1. Propositional logic
  2. Mathematical induction
  3. Set theory, relations and functions
  4. Number theory
  5. Abstract algebra
  6. Counting
  7. Sequences and recurrence relations
     (a) Algebraic binomial coefficient
     (b) Fibonacci sequence
     (c) Solve recurrence relations
     (d) Generating function

Topics - Math

- Discrete Mathematics
  1. Propositional logic
  2. Mathematical induction
  3. Set theory, relations and functions
  4. Number theory
  5. Abstract algebra
  6. Counting
  7. Sequences and recurrence relations

Topics - Programming

- Programming

    1. C-syntax - statement, expression and printf

Topics - Programming

- Programming

2. Variables, data Types and identifier

Topics - Programming

- Programming

3. Control flow (Condition)- if-else and switch

Topics - Programming

- Programming

4. Control flow (Looping) - while, do-while and for

Topics - Programming

- Programming

5. Functions - pass by value

Topics - Programming

- Programming

6. Arrays, string and pointer

Topics - Programming

- Programming

7. Functions - pass by pointer

Topics - Programming

- Programming

8. Algorithm

Reference

References:

- *Discrete Mathematics Notes*, David A. SANTOS
- *Number theory for Mathematical Contests*, David A. SANTOS
- Cprogramming.com Tutorial,
  `http://www.cprogramming.com/tutorial/c/lesson1.html`
- C Programming Contents,
  `http://gd.tuwien.ac.at/languages/c/programming-bbrown/cstart.htm`

Useful links:

HKOI official site	`http://www.hkoi.org`
Mathematical Database	`http://www.mathdb.org`
C++ Examples with implementation	`http://www.fredosaurus.com/notes-cpp/`