Foundations of Software Science（ソフトウェア基礎科学）/
Foundations of Computer Software（ソフトウェア基礎）
Homework
October 16, 2009
Eijiro Sumii (Instructor)
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Submit on or before October 22, 2009 (next Thursday) by e-mail to:

  sumii@ecei.tohoku.ac.jp

The subject line of the e-mail must be

  software homework 2

all in lower case and ascii（半角）characters.

Write your student id (including all alphabets and digits) and full name in the first line
of the message body of the e-mail.
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1. Which of the following λ-terms are grammatically correct?

    (a)   x
    (b) λ x
    (c) λ x.y
    (d) λ x.xx
    (e) λ x. λ y.x
    (f) λ x.x λ y
    (g) λ x.x(λ y.z)

2. Show every step of the reduction of the following λ-terms.

    (h)   (λ a.a)(λ b.b)(λ c.c)(λ d.d)
    (i)   (λ x.xx)(λ y.y)
    (j)   (λ a. λ b.b)xy
    (k)   (λ x.xx)(λ y.yy)