

Homework 01

Chapter 1

- **1.9** : No, because there are too many examples of ambiguity in natural language, while expressing algorithms needs accuracy.
- **1.11** :
 - (1) *definiteness* : "sand the surface until smooth", "smooth" lacks the definiteness.
 - (2) *effective computability* : "take the smallest number", which is can not be carried out by the computer.
 - (3) *finiteness* : "keep plus 1 to a , until a is larger than $a+1$ ", which will execute forever.
- **1.16** :
 - (1) The ISA specifies the interface between the computer program directing the computer hardware and the hardware carrying out those directions.
 - (2) The ISA specifies the acceptable representations for operands.
 - (3) The ISA specifies the mechanisms that the computer can use to figure out where the operands are located.
- **1.18** : One; One.

Chapter 2

- **2.8** :
 - (1) 01111111, 127
 - (2) 10000000, -128
 - (3) $2^{n-1} - 1$
 - (4) -2^{n-1}
- **2.14** :
 - a. 1100
 - b. 1010
 - c. 1111
 - d. 1011
 - e. 0000
- **2.22** : 0111 1111 1111 1111 + 0011 1111 1111 1111
- **2.24** : 1111 1111 1111 1111 + 1011 1111 1111 1111
- **2.27** : Yes, the problem is overflow.
- **2.34** :
 - a. 0111

- b. 0111
- c. 1101
- d. 0110