1.9 Yes. if it is definite, effectively computable and finite.

1.11 ① not definite: loop for almost 100 times. it is not an algorithm because the computer doesn't know how many times to loop exactly.

② not effective computable: find an integer n and $n^2 = -1$. There is no such an integer.

③ not finite: loop forever. It will never stop without any output.

1.16 The number of opcodes, data types, addressing modes.

1.18 A single microarchitecture implements one ISA. Many microarchitecture usually exist for a single ISA.

2.8

a. binary: 0111,1111 decimal: 127

b. binary: 1000,0000 decimal: -128

c. $2^{n-1} - 1$

d. -2^{n-1}

2.14 a. 1011 + 0001 = 1100

b. 0000 + 1010 = 1010

c. 1100 + 0011 = 1111

d. 0101 + 0110 = 1011

e. 1111 + 0001 = 0000

2.22 1000.0000.0000.0000 and 1000.0000.0000.0000

2.24 1111.1111.1111.1111 and 0000.0000.0000.0001

2.27 Yes, the 2 operation numbers are both positive but their sum is negative. The addition generates an overflow.

2.34 a. = NOT(1011 AND 1100)

= NOT (1000) = 0111

b. NOT(1000 AND 1101)

= NOT (1000) = 0111

c. 1101

d. 0110