1. By using two's complement.

For two integers a and b, a-b=a+(-b). By inverting each bit of b and adding 1 to it, we can get -b, then we can use the adder to support the subtraction operation.

（将 b 所有位先取反再加 1，得（-b）的补码，然后将 a 和（-b）送入加法器进行加法运算就可以实现 a-b）

2.

	1234H + 4321H	1000H + FFFFH	1000H -2000H	F000H +F000H	2000H -8000H
CF	0	1	1	1	1
OF	0	0	0	0	1
SF	0	0	1	1	1
ZF	0	0	0	0	0
PF	1	1	1	1	1

3.

It takes two steps to calculate the physical address:

1). Shift the segment value left one hex digit (or 4 bits)

2). Then adding the above value to the offset address

	a	b	c
Logical address	CS:IP = 1A00H:B000H	DS:DI=1000H:2000H	SS:SP=2900H:3A00H
Segment value	1A00H	1000H	2900H
Shift left	1A000H	10000H	29000H
Add offset	B000H	2000H	3A00H
Physical address	25000H	12000H	2CA00H

4.

M/~IO

5.

The bus cycle is the cycle or time required to make a single read or write transaction between the cpu and an external device such as external memory.

6.

Each execution of "PUSH AX", SP will subtract 2. After 10 times, SP subtracts 20, i.e.,0014H.
So, SP=0800H-0014H=07ECH, SS remains 3500H.
Each execution of "POP BX", SP will add 2. After 6 times, SP adds 12, i.e., 000CH. So, SP=006CH+000CH=07F8H, SS remains 3500H.

7.

The physical address is FFFF0H+0000H=FFFF0H. So the first instruction to be executed is in FFFF0H. This instruction makes CPU jump to the address of BIOS and start properly.

8.

(1) 0200H

(2) 2A10H

The logical address is DS:200H=1000H:200H, the physical address is 10200H, so the instruction will move content in 10200H and 10201H into AX, i.e., 2A10H.

(3) 0200H

(4) 5946H

The physical address is 10000H+3H+0200H=10203H, so the instruction will move content in 10203H and 10204H into AX, i.e.,5946H.

(5) 463CH

The physical address is 10000H+0200H+02H=10202H, so the instruction will move content in 10202H and 10203H into AX, i.e.,463CH.

(6) 6B59H

The physical address is 10000H+2H+0200H+02H=10204H, so the instruction will move content in 10204H and 10205H into AX, i.e., 6B59H.