1、

A. Virtual address format

13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	0	0	0	1	0	0	1	1	1	1	1	0	0

B. Address translation

Parameter	Value
VPN	0x09
TLB index	0x1
TLB tag	0x02
TLB hit?(Y/N)	N
Page fault?(Y/N)	N
PPN	0x17

C. Physical address format

11	10	9	8	7	6	5	4	3	2	1	0
0	1	0	1	1	1	1	1	1	1	0	0

D. Physical memory reference

Parameter	Value
Byte offset	0x0
Cache index	0x0F
Cache tag	0x17
Cache hit?(Y/N)	N
Cache byte returned	—

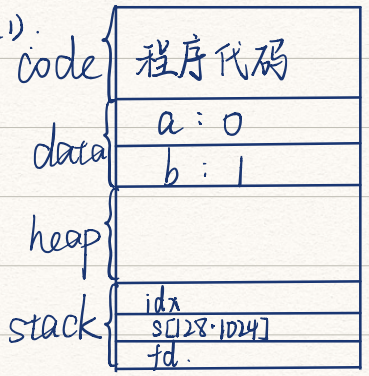
2、 page size = 2048B = 2^{11}B

64 − 11 = 53，故共有 2^{53} 个 page

一页中可以装 2048 ÷ 4 = 2^9 个页表项

而 $(2^9)^6 > 2^{53}$，所以至少需要6级 levels 才能将所有页面放在表中.

3、(1).



12) ①. S=0xFFC00 = 1111 1111 1100 0000 0000

segment = 11, 位于stack段

Offset = 11 1111 1100 0000 0000 = 255K

VA中stack段占1MB/4 = 256KB

∴实际的负偏移量 = 256K-255K = 1K.

∴PA = 1MB-1K = 1023K

②. VA = 258K = 0100 0000 1000 0000 0000

segment = 01, 位于data段,

∴Offset = 00 0000 1000 0000 0000 = 2K

∵data段size为2KB, 所以内存访问越界.

③. VA = 514K = 1000 0000 1000 0000 0000

segment = 10, 位于heap段

∴Offset = 1000 0000 0000 = 2K < 8K

∴PA = 7MB + 2KB = 7170K