7376 HW3
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Problem1:

a)

Index	Process	Virtual address	Size	Physical address
0	A	0	1KB	10240
1	A	2048	1KB	3072
2	A	3072	1KB	7168
3	B	1024	1KB	2048
4	B	2048	1KB	4096
5	B	3072	1KB	9216

b) i., v. and vi. are valid virtual memory access addresses.

	Corresponding Segment Index	Offset	Physical address
i.	1	100	3172
iii.	2	1023	8191
v.	4	0	4096
vi.	5	200	9416

Problem2:

	Is valid or not	Physical address	process
a) 29	No		
b) 123	Yes	507	B
c) 16	Yes	16	A
d) 90	No		
e) 10	Yes	10	A

The allocate of virtual memory and physical memory are showed in the graph. If the virtual address is within the range of 0 to 19 or within the range of 108 to 127, it is valid. Add the correspond offset can get the physical address.
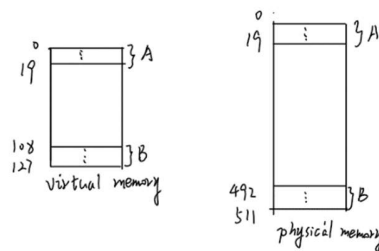
Problem3:

a)
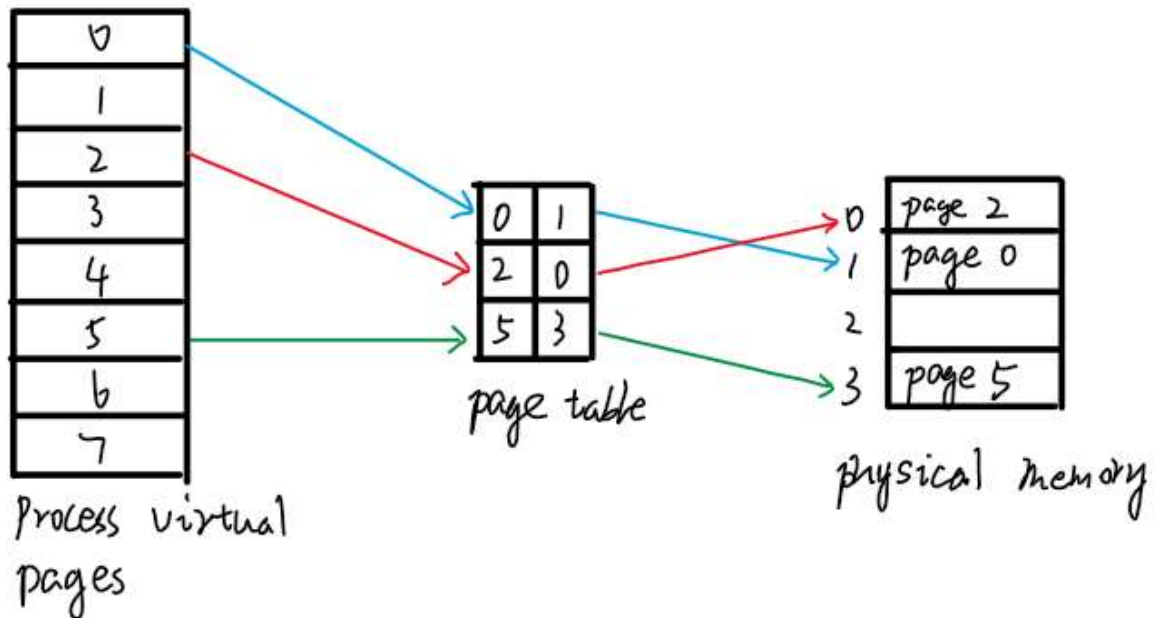
b) 256 bytes pages means the page offset needs 8 bits, and there are 8 pages which needs 3 bits. So, the Virtual Address needs (8 + 3) = 11 bits to represent.

256 bytes pages means the page offset needs 8 bits, and there are 4 frames which needs 2 bits. So, the Physical Address needs (8 + 2) = 10 bits to represent.

Because the pages are 256 bytes, the offset needs 8 bits. (2^8 = 256)

c) 418 D = 001 1010 0010 B
VPN = 001 B = 1 D
There is no page1 in the page table. So, 418 doesn't exit.

0 D = 000 0000 0000 B
VPN = 000 B = 0 D → PFN = 1 D = 001 B
Offset = 0000 0000 B
So, the Physical Address = 001 0000 0000 = 256 D

581 D = 010 0100 0101 B
VPN = 010 B = 2 D → PFN = 0 D = 000 B
Offset = 0100 0101 B
So, the Physical Address = 000 0100 0101 = 69 D

460 D = 001 1100 1100 B

VPN = 001 B = 1 D

There is no page1 in the page table. So, 460 doesn't exit.