5.16.1

Address (decimal)	Address (hex)	Virtual page	TLB	Page table	Page fault	TLB		
						valid	tag	Physical page
4669	0x123d	1	miss	hit	yes	1	0xb	12
						1	0x7	4
						1	0x3	6
						1	0x1	13

Address (decimal)	Address (hex)	Virtual page	TLB	Page table	Page fault	valid	tag	Physical page
2227	0x08b3	0	miss	hit	no	1	0x0	5
						1	0x7	4
						1	0x3	6
						1	0x1	13

Address (decimal)	Address (hex)	Virtual page	TLB	Page table	Page fault	valid	tag	Physical page
13916	0x365c	3	miss	hit	no	1	0x0	5
						1	0x7	4
						1	0x3	6
						1	0x1	13

Address (decimal)	Address (hex)	Virtual page	TLB	Page table	Page fault	valid	tag	Physical page
34587	0x871b	8	miss	hit	yes	1	0x0	5
						1	0x8	14

						1	0x3	6
						1	0x1	13

48870	0xbee6	b	miss	hit	no	1	0x0	5
						1	0x8	14
						1	0x3	6
						1	0xb	12

12608	0x3140	3	miss	hit	no	1	0x0	5
						1	0x8	14
						1	0x3	6
						1	0xb	12

49225	0xc040	c	miss	hit	yes	1	0xc	15
						1	0x8	14
						1	0x3	6
						1	0xb	12

5.16.3

Address (deci)	Address (hex)	Virtual page	tag	index	TLB	Page table	Page fault	TLB			
								valid	tag	Physical page	index
4669	0x123d	1	0	1	miss	hit	yes	1	0xb	12	0
								1	0x7	5	1
								1	0x3	6	0
								1	0x0	13	1
2227	0x08b3	0	0	0	miss	hit	no	1	0x0	5	0
								1	0x7	4	1
								1	0x3	6	0
								1	0x0	13	1
13916	0x365c	3	1	1	miss	hit	no	1	0x0	5	0
								1	0x1	6	1
								1	0x3	6	0
								1	0x1	13	1
34587	0x871b	8	4	1	miss	hit	yes	1	0x0	5	0

								1	0x1	6	1
								1	0x4	14	0
								1	0x1	13	1

48870	0xbee6	b	5	1	miss	hit	no	1	0x0	5	0
								1	0x1	6	1
								1	0x4	14	0
								1	0x5	12	1

12608	0x3140	3	1	1	hit	hit	no	1	0x0	5	0
								1	0x1	6	1
								1	0x4	14	0
								1	0x5	12	1

49225	0xc040	c	6	0	miss	miss	yes	1	0x6	15	0
								1	0x1	6	1
								1	0x4	14	0
								1	0x5	12	1

5.17.1

Tag: $32 - \log_2 8192 = 32 - 13 = 19$ bits
Each page table: $2^{19} * 4$ bytes $= 2^{21}$ bytes $= 2MB$
For 5 page tables: $5 * 2MB = 10MB$

5.18.1

In the worst case:
Entry: $2^{(43 - 12)} = 2^{31}$
Each entry: 4 bytes
For all entries: $2^{31} * 4$ bytes $= 2^{33}$ bytes $= 8GB$