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CSCI 564: Homework 4
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Part I:

Config	Virtual Address	Physical Address	Virtual Page #	Physical Page #	Offset
a	32	30	20	18	12
b	32	31	18	17	14
c	64	34	50	20	14

These values are calculated from the following equations:
- Virtual Address: Address length of operating system
- Physical Address: log2(RAM size)
- Offset: log2(page size)
- Virtual Page # bits: Virtual address - offset
- Physical Page # bits = Physical address - offset

Advantages of using a larger page size:
- Smaller page table
- Less TLB misses
- Fewer page faults

Disadvantages of using a larger page size:
- Potential of unused/wasted space
- More expensive

Part II:

Address	Result (H, M, PF)
0x0FFF	M
0x7A28	H
0x3DAD	H
0x3A98	H
0x1C19	PF
0x1000	H
0x22D0	PF

Final TLB (base-10):

Valid	Tag	Phyical Page #	LRU
1	1	13	3
1	7	4	1
1	3	6	2
1	2	14	4

Final Page Table (base-10):

Index	Valid	Physical Page or On Disk
0	1	5
1	1	13
2	1	14
3	1	6
4	1	9
5	1	11
6	0	Disk
7	1	4
8	0	Disk
9	0	Disk
10	1	3
11	1	12

The final values for the TLB and page table were derived as follows:
- Check the tags in TLB for a match
    - Correct match: set valid bit
        - TLB hit
        - Update LRU bits
    - No match: check the page table
        - Valid entry: TLB miss
        - Evict/replace LRU in the TLB
        - Update LRU bits
    - Invalid page table entry: page fault (because the page is on the disk)
        - Assign new page number
        - Set valid bit (page table)
        - Update TLB/evict LRU