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1 A: 4KB is the size of a frame.

1 B: ~~64K bytes of virtual address space~~
 2^{64} bytes of virtual address space

1 C: $2^{32} = 4$ GB of DRAM
 $2^{32-12} = 2^{20}$ frames = 1048576

1 D: $2^{64-12} = 4.5 \times 10^{15}$ pages
 $= 2^{52}$

2 A: 1 access TLB access to cache is NO hit

B: 1 access TLB access memory so hit

~~C: 1 access TLB access to cache is NO hit~~
~~D: 1 access TLB access to cache is NO hit~~

C: 2 access TLB goes to look up (+1) which points to main memory (+1)

D: 2 access but it returns incorrect data. Cache access is (+1), It fails so it accesses disk (+1)