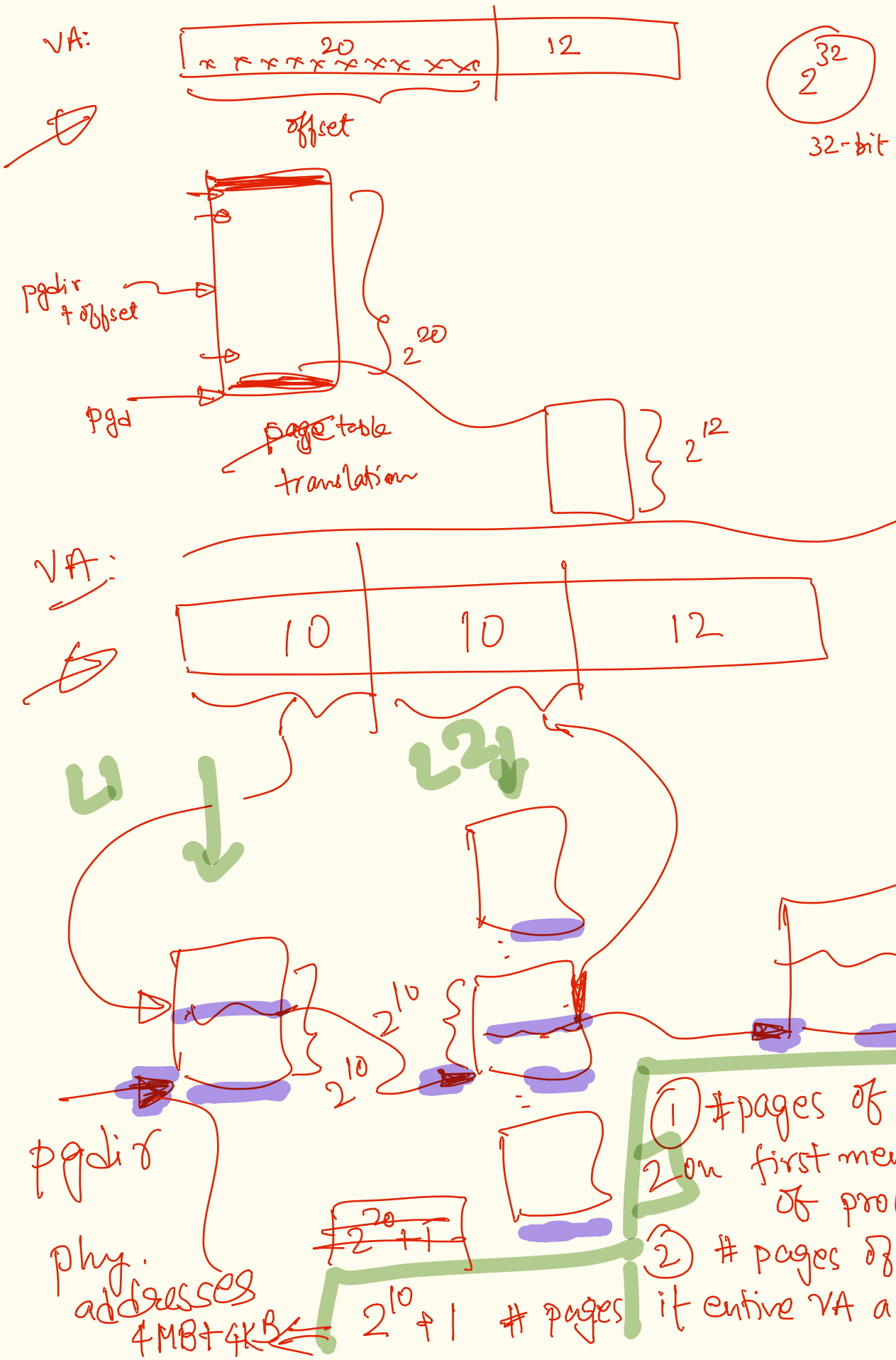
Lecture 16 CS347/333 8.9.22

① 32-bit addr. space, 4KB pages, PTEs ⇒ 4 bytes



① # pages of page table on first memory access of process?

② # pages of page table if entire VA accessed?

(*) are all pages of all active processes in memory always?

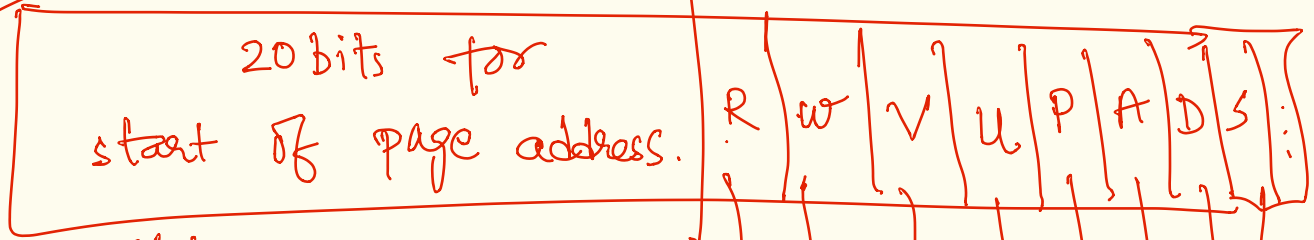
paging

- VA to PA mapping available as soon as VA region marked for use by process in (process view) virtual address space

demand paging

- (v) to P — may not exist
  - valid
  - mapped on demand
- (i) lazy allocation
- (ii) swapping

PTE



mapping: V=1, P=1

valid = 0 ⇒ no mapping ⇒ pg. fault

swap: V=1, P=0 ⇒ 2^{20} MSB bits store index on swap device

read

write

valid

user/supervisor