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BB

4)

e) TLB stands for "Translation Lookaside Buffer" and is a cache for physical to virtual memory translations and vise versa. Acts as a cache for the page table, by sorting recently accessed pages physical addresses.

a)

$$\log_2 (2GB / 32KB) = \log_2 (2^{31} / 2^{15}) = \underline{\underline{16}}$$

b)

$$\log_2 (32KB) = \log_2 2^{15} = \underline{\underline{15}}$$

c)

$$2GB / 32KB = 2^{31} / 2^{15} = \underline{\underline{2^{16}}} = 64 \cdot 1024 \cong 66000$$

d)

$$2^{16} \cdot (16 + 16 + 15) = 47 \cdot 2^{16} \cong 48 \cdot 2^{16} = 3 \cdot 2^{20} = 3 MB$$

$$\underline{\underline{= 3000 KB}}$$