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Homework Exercise

Consider the page table shown in Figure 3.1 for a system with 12-bit virtual and physical addresses and with 256-byte pages. The list of free page frames is D, E, F (that is, D is at the head of the list, E is second, and F is last). Convert the following virtual addresses to their equivalent physical addresses in hexadecimal. All numbers are given in hexadecimal. (A dash for a page frame indicates that the page is not in memory). Please describe how you find the physical address.

Solution:
Kích thước của virtual address và physical address là 2^12 = 4096 bytes. Page size = 256 bytes = 2^8. Do đó, 4 bit đầu thể hiện cho page number và 8 bit cuối thể hiện cho page offset.

9EF → 0EF
111 → 211
700 → vì D ở đầu list of free page frames → D00
0FF → E is second → EFF
3DE → ADE
7FF → còn F free → FFF