## Short Assignment – Address Translation

A process has the following virtual memory regions:

- 00804000 to 00806FFF (3 pages) – read/only
- 01002000 to 01004FFF (3 pages) – read/write

You are given 9 blocks in the figure below to create this address space: 3 blocks for page tables (00000, 00001, and 00002), and 6 blocks for the mapped memory. The root of the page table (also known as the page directory) is page 00000. Virtual and physical addresses are 32 bits, and the page size is 4096 bytes, giving a 20-bit page number and 12-bit offset.

Draw the page table corresponding to this configuration. For each page directory or page table entry which has P=1 (i.e. it is valid) please give (a) its index 'i,' which should be a 3-digit hex number; (b) the writeable bit (w), which is 1 if the mapped page can be written (ignored in the page directory), and (c) the physical block number (between 00001 and 00008) pointed to. In addition, draw an arrow from each page directory or table entry to the page it points to. Please give all numbers in hex.
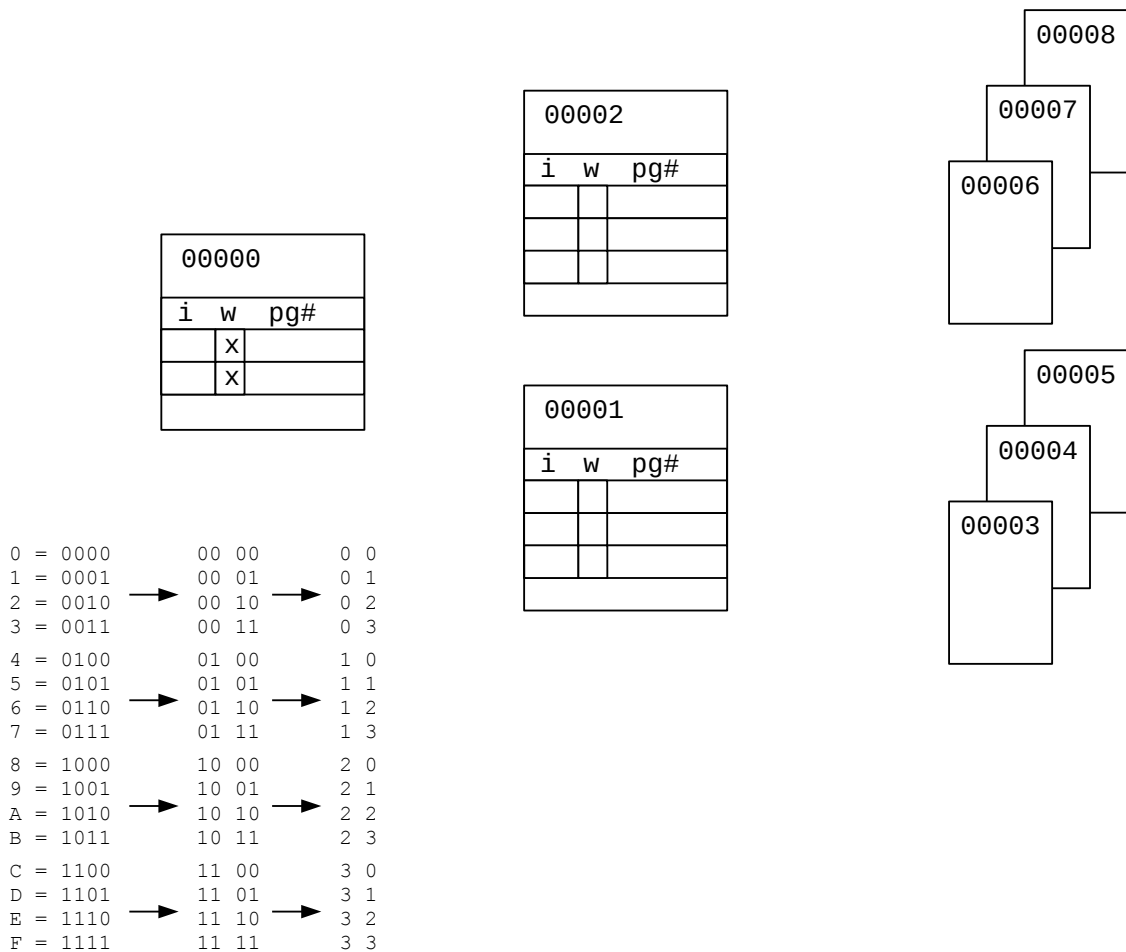
Submission instructions: Please submit your answer via Canvas, as a PDF or image file. (an easy way is to print this page, write your answer on it, take a picture with your cell phone, and submit)