ECE 662
Homework #7

Problems:

1. Problem 5.6. Substitute the following for Part (b):

   (b) How many different blocks (128 words each) of main memory must be accessed to execute this program?

   (c) How many blocks does the cache hold?

   (d) Number the blocks of main memory 0, 1, 2, ... What blocks are brought into the cache on the first pass through the outer loop? Second pass? ... Tenth pass? What additional blocks are brought in after the outer loop last executes until the end of the program?

   (e) (1) How much time does it take to bring one block into the cache from main memory?

   (2) How many total blocks are moved from main memory to the cache during execution of the program?

   (3) What is the total time needed for reading blocks from main memory into the cache?

   (f) If all instructions are assumed to be executed out of the cache:

   (1) What is the total time spent in the inner loop per pass of the outer loop?

   (2) What is the total time spent in the outer loop?

   (3) What is the total program execution time?

   (g) Compute the total time needed for instruction fetching during execution of the program in Figure P5.1 (sum of (e)(3) and (f)(3)).

2. Problem 5.13. Note that the computer is byte-addressable. Organize the results in a table formated like this:

	Contents of data cache after:			
Block position	Pass 1	Pass 2	Pass 3	Pass 4
0	[200]			
1				
2				
3				
4				
5				
6				
7				