INSTRUCTION TIMES.

Read Chapter 3.4, Appendix D
Do Chapter 3 # 5ace, 8

X1. How many CPU cycles are required by the following instructions:
   a. ADD.B #4,D0
   b. MOVE.W D0,(A0)+
   c. CMP.L (A0),D3
   d. JSR $000B14

X2. On a 68000 based computer running at 8MHz, how long (in seconds) will the
    following loop take to run?

    MOVE.W #$1000,D0
    LOOP
    SUBQ.W #1,D0
    BNE LOOPL

X3. All of these loops fill memory from $9000 to $9FFF with $FF’s. Rank them
    from slowest to fastest:
    * Method 1
      MOVE.L #$9000,A0
      LOOP
      MOVE.B #$FF,(A0)+
      CMP.L #$A000,A0
      BNE LOOP
    * Method 2
      MOVE.L #$9000,A0
      MOVE.L #$A000,A1
      MOVE.L #$FFFFFFFF,D0
      LOOP
      MOVE.L D0,(A0)+
      CMP.L A0,A1
      BNE LOOP
    * Method 3
      MOVE.L #$9000,A0
      MOVE.W #$A000,D0
      LOOP
      MOVE.L #$FFFFFFFF,(A0)+
      CMP.W A0,D0
      BNE LOOP
* Method 4
MOVE.L #$9000,A0
CLR.L D0
NOT.L D0
MOVE.W #$400,D1
LOOP
MOVE.L D0,(A0)+
SUBQ.W #1,D1
BNE LOOP

* Method 5
MOVE.L #$9000,A0
MOVE.W #$0FFF,D0
LOOP
MOVE.B #$FF,0(A0,D0.W)
SUBQ.W #1,D0
BNE LOOP

* Method 6
MOVE.L #$9000,A0
MOVE.L #$A000,A1
MOVE.L #$FFFFFFF,D0
LOOP
MOVE.L D0,(A0)+
MOVE.L D0,(A0)+
MOVE.L D0,(A0)+
MOVE.L D0,(A0)+
CMP.L A0,A1
BNE LOOP

Bonus:
Write code that does the job faster than any of these methods.