Complete the following problems. Be sure to show your work for partial credit.

1. Examine the following snippet of MIPS code. (Assume register $a0 is initialized with the base address of an array of words in memory.)

   ```
   addi $t0, $zero, 0
   addi $t2, $zero, 0
   addi $t1, $zero, 5
   L: add $t3, $a0, $t2
   sw $t1, 0($t3)
   addi $t2, $t2, 4
   addi $t0, $t0, 1
   slti $t4, $t0, 100
   bne $t4, $zero, L
   done:
   ```

   (a) Comment this code snippet.
   (b) Indicate the contents of the five temporary registers ($t0 - $t4) when the “done” label is reached.
   (c) Describe what this bit of code is doing. You may use either a couple English sentences or pseudocode.

2. Write MIPS instructions to implement the following code snippet. Assume that amount is stored in $s0 and fee is stored in $s1.

   ```
   switch (amount) {
   case 20: fee=2; break;
   case 50: fee=3; break;
   case 100: fee=5; break;
   default: fee=0;
   }
   ```

3. Write MIPS instructions to implement the following small application.

   ```
   int main() {
   int y;
   y = average(2,3,4,5);
   }
   ```

   ```
   int average(int f, int g, int h, int i) {
   int sum = f + g + h + i;
   int avg = sum / 4;
   return avg;
   }