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;
}
```