Question 1 (15 points):

```
1  # license-plate array
2  .data
3  plates:
4      .asciiz "GFC-906"
5      .asciiz "FNL-909"
6      .asciiz "BTP-610"
7      .asciiz "GTC-883"
8      .asciiz "KCH-135"
9      .asciiz "JCW-320"
10     .asciiz "MPV-591"
11     .asciiz "MZL-574"
```

Each null-terminated string in the figure above corresponds to an Alberta license plate number. All license plates have the same number of characters. The first string in the list corresponds to `plates[0]`

1. (**5 points**) Write the shortest sequence of MIPS instructions that places the address of the first character of `plates[3]` into register `$a0`.

```
la   $a0 plates
addi $a0, $a0, 24
```

2. (**5 points**) Assume that register `$a1` contains an unsigned integer value `k`. Write the shortest sequence of MIPS instructions that places the address of the first character of `plates[k]` in `$v0`.

```
la   $v0, plates        # $v0 <-- &(plates[0])
sll  $a1, $a1, 3        # $a1 <-- 8*k
add  $v0, $v0, $a1      # $v0 <-- &(plates[k])
```

3. (**5 points**) Write the shortest sequence of MIPS instructions that loads the third character of `plates[5]` (this is the "W" character) into `$t0`.

```
la    $t1, plates      # $t1 <-- &(plates[0])
lbu   $t0, 42($t1)     # $t0 <-- Mem[plates+42]
```