

4.9 Exercises 6,7,8,9,10

6. "goto" transfers control to a label designated immediately following the goto instruction. However, this instruction is limited to a 2 byte offset (short) and goto_w (goto_"wide") allows for a larger, 4 byte offset. the "lcmp" instruction is used to compare longs in place of the limited 2 byte integer comparison instruction, "ifne".

7.

land (rem > 0 and rem = 1) caseodd

```
iload_2      ; load current value
iconst_2     ; load 2 to determine if even or odd
idiv
iconst_0
if_icmpgt CaseOdd
iload_2
iconst_2
idiv
iconst_1
if_icmpeq CaseOdd
```

nor repeats these instructions except the label changes for the first/second case.

8. Since we'd be dealing with unsigned integers (assuming), I'd use a iushr in place of my division as it is equivalent to dividing by some power of two (2^1). The same pattern would supplement my code blocks.

9. using the jsr here will destroy all information previously stored in local 1. Thus, the poem will end up only storing and returning the last line in the poem. Within the subroutine I'd probably make each line either print each argument being passed or save each argument being passed into local variables.

10. Certainly. Using a subroutine isn't dissimilar to making an if/else/statement. A for loop could easily be mimicked by a subroutine where the value was repeatedly incremented or decremented. There would have to be a constant reference to the subroutine.