



(controller

```
(assign continue (label fact-done)) ;set up final return address
fact-loop
```

```
(test (op =) (reg n) (const 1))
```

```
(branch (label base-case))
```

```
;; Set up for the recursive call by saving n and continue.
```

```
;; Set up continue so that the computation will continue
```

```
;; at after-fact when the subroutine returns.
```

```
(save continue)
```

```
(save n)
```

```
(assign n (op -) (reg n) (const 1))
```

```
(assign continue (label after-fact))
```

```
(goto (label fact-loop))
```

after-fact

```
(restore n)
```

```
(restore continue)
```

```
(assign val (op *) (reg n) (reg val)) ;val now contains n(n - 1)!
```

```
(goto (reg continue)) ;return to caller
```

base-case

```
(assign val (const 1))
```

```
;base case: 1! = 1
```

```
(goto (reg continue))
```

```
;return to caller
```

fact-done)