Name:

Week 0

```
;; add42: adds 42
;;   inputs: an integer, N
;;   outputs: the integer one larger than N
(define (add42 N)
```

```
;; is42: is it Douglas Adams's answer?
;;   inputs: an integer, N
;;   outputs: true if N==42, false otherwise
(define (is42 N)
```

```
;; sign: returns -1, 0, or 1
;;   inputs: an integer, N
;;   outputs: -1 if N<0; 1 if N>0; 0 otherwise
(define (sign N)
  (cond
```

Trace `(fac 4)`

```
;; fac: the factorial function
;;   inputs: a positive integer, N
;;   outputs: N!
(define (fac N)
  (if (< N 1)
      1
      (* N (fac (- N 1)))
      ))
```

Trace `(halve-count 8)`

```
;; halve-count:
;;   inputs: an integer, N
;;   outputs: (log base 2 of N), i.e.,
;;            # of times you can divide N by 2
;;            until you reach 1
(define (halve-count N)
```

```
> (halve-count 8)
3
> (halve-count 11)
3
> (halve-count 1)
0
>
```