Correction of TD6

Exercise 1:

Observation point	A	B	L
P1	10		
P1	9		
P1	8		
P1	7		
P1	6		
P1	5		
P1	4		
P1	3		
P1	2		
P1	1		
P1	0		
P2	1	2	
P2	2	-5	‘(2)
P2	3	7	‘(-5 2)
P2	4	6	‘(7 -5 2)
P2	5	2	‘(6 7 -5 2)
P2	6	-7	‘(2 6 7 -5 2)
P2	7	4	‘(-7 2 6 7 -5 2)
P2	8	0	‘(4 -7 2 6 7 -5 2)
P2	9	9	‘(0 4 -7 2 6 7 -5 2)
P2	10	1	‘(9 0 4 -7 2 6 7 -5 2)
P3	1		‘(1 9 0 4 -7 2 6 7 -5 2)
P3	1		‘(9 0 4 -7 2 6 7 -5 2)
P3	1		‘(0 4 -7 2 6 7 -5 2)
P3	0		‘(4 -7 2 6 7 -5 2)
P3	0		‘(-7 2 6 7 -5 2)
P3	-7		‘(2 6 7 -5 2)
P3	-7		‘(6 7 -5 2)
P3	-7		‘(7 -5 2)
P3	-7		‘(-5 2)
P3	-7		‘(2)
P2	-7		‘()
P4	-7		‘(1 9 0 4 -7 2 6 7 -5 2)

Function f is not terminal recursive because its last instruction is not a call to itself.

Function g is terminal recursive because its last instruction is a call on itself (i.e. a recursive call).

This program builds a list of 10 integers retrieved from the user (function f) and returns the smallest value in this list (function g).

Exercise 2:

Trace

Iteration	l	n	If remainder == 0
0	‘(3 4 -6 7 8 10 0 -12 18 8 36)	3	(cons 3
1	‘(4 -6 7 8 10 0 -12 18 8 36)	3	
2	‘(-6 7 8 10 0 -12 18 8 36)	3	(cons -6
3	‘(7 8 10 0 -12 18 8 36)	3	
4	‘(8 10 0 -12 18 8 36)	3	
5	‘(10 0 -12 18 8 36)	3	
6	‘(0 -12 18 8 36)	3	(cons 0
7	‘(-12 18 8 36)	3	(cons 12
8	‘(18 8 36)	3	(cons 18
9	‘(8 36)	3	
10	‘(36)	3	(cons 36
11	‘()	3	

When we reach iteration 11, we return the list l, which is empty, so we return empty.

So, we retrieve all the **cons** instructions that have been set aside, and the result is this:

(cons 3 (cons -6 (cons 0 (cons -12 (cons 18 (cons 36)

→

‘(3 -6 0 -12 18 36)