

$$I(n) = \text{ after } n \text{ iterations, } i = n + 1 \text{ and } s = \sum_{k=1}^n k$$

```
- fun arithSum(N) =  
=   let  
=     val s = ref 0;  
=     val i = ref 1;  
=   in  
=     (while !i <= N do  
=       (s := !s + !i;  
=        i := !i + 1);  
=     !s)  
= end;
```

$I(n) =$  after  $n$  iterations,  $x$  is even

```
- fun aaa(m) =  
=   let  
=     val x = ref 0;  
=     val i = ref 0;  
=   in  
=     (while !i < m do  
=       (x := !x + 2 * !i;  
=         i := !i + 1);  
=     !x)  
=   end;
```

$l(n) =$  after  $n$  iterations,  $total = x^i$  and  $i = n$

```
- fun exp(x, y) =  
=   let  
=     val total = ref 1;  
=     val i = ref 0;  
=   in  
=     (while !i < y do  
=       (total := !total * x;  
=         i := !i + 1);  
=     !total)  
=   end;
```