

```

; Sum the integers from 1 to 13.
;
;   $1 ... holds the constant -1.
;   $2 ... counts down from 13 to 0.
;   $3 ... where the sum is accumulated.
;
; Initialization
    lis    $2                ; Load N (ie 13) into register 2.
    .word 13
    add    $3, $0, $0        ; Clear register 3 (the sum so far).
top:
    add    $3, $3, $2        ; Add next int to sum so far.
    lis    $1                ; Set $1 to -1.
    .word -1                ; ...used to dec the ctr in the next instr.
    add    $2, $2, $1        ; Compute the next smaller int.
    bne    $2, $0, top       ; Loop until ctr is 0.

; Exit to the O/S
    jr     $31

```