1.

```
Función algoritmo S (n)      ⎫
cont ← 2^n } A               ⎪
For j ← 1 to n do      ⎫     ⎪
  r ← cont } C         ⎪     ⎪
  while r ≥ 1 do ⎫     ⎬ B   ⎬ t(n)
    r ← r/2      ⎬ D   ⎪     ⎪
  end while      ⎭     ⎪     ⎪
end for                ⎭     ⎪
return r                     ⎭
```

$A = 2$; $C = 1$

D: $n=0$: $cont = 2^0 = 1$: $r = 1$: 1 iteración dentro del while + 2 comparaciones

$n=1$: $cont = 2^1 = 2$: $r = 2$: 2 iteraciones " " " + 3 "

$n=2$: $cont = 2^2 = 4$: $r = 4$: 3 " " " " + 4 "

$n=n$: $cont = 2^n$: $r = n$: $(n+1)$ " " " " + $(n+2)$ "

dentro del while hay dos operaciones: $2(n+1)$ operaciones

$D = 2(n+1) + (n+2) = 2n + 2 + n + 2 = 3n + 4$

$B = \sum_{j=1}^{n} (C+D) = \sum_{j=1}^{n} (1 + 3n + 4) = \sum_{j=1}^{n} (3n+5) = n(3n+5) = 3n^2 + 5n$

$t(n) = A + B = 3n^2 + 5n + 2$

$t(n) \in O(n^2)$