

**Algorithm Design**  
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**Solution of Exercise R-1.20**

By the definition of big-Oh, we need to find a real constant  $c > 0$  and an integer constant  $n_0 \geq 1$  such that  $2^{n+1} \leq c(2^n)$  for  $n \geq n_0$ . One possible solution is choosing  $c = 2$  and  $n_0 = 1$ , since  $2^{n+1} = 2 \cdot 2^n$ .