

Algorithm Design
M. T. Goodrich and R. Tamassia
John Wiley & Sons
Solution of Exercise R-1.23

By the definition of big-Omega, we need to find a real constant $c > 0$ and an integer constant $n_0 \geq 1$ such that $n^3 \log n \geq cn^3$ for $n \geq n_0$. Choosing $c = 1$ and $n_0 = 2$, shows $n^3 \log n \geq cn^3$ for $n \geq n_0$, since $\log n \geq 1$ in this range.