

## Math 491 Homework 13: additional problem

Let  $g : \mathbb{R} \rightarrow \mathbb{R}$  be continuous and compactly supported. Let  $\varphi_t(x) = \frac{1}{\sqrt{2\pi t}} e^{-\frac{x^2}{2t}}$  and let  $g_t = g * \varphi_t$ . Give a uniform upper bound for  $g_t^{(n)}$  in terms of  $\|g\|_\infty$  and  $t$ .