

**2.9.** We use Taylor expansions. Define

$$G(t) = \int_0^t e^{-x^2} dx.$$

By the fundamental theorem of calculus,  $G'(t) = e^{-t^2}$ , therefore L'Hôpital's theorem tells us that  $G(t) \sim t$  as  $t \rightarrow 0$  (check!). This exercise is asking for a refinement.