

$$\begin{aligned} (2) \quad & \lim_{x \rightarrow 0} (1+x)^{\frac{1}{2x}} \\ &= \lim_{x \rightarrow 0} \left\{ (1+x)^{\frac{1}{x}} \right\}^{1/2} \\ &= \sqrt{e} \end{aligned}$$