

$$\begin{aligned}
1. \quad a) \quad & \lim_{(x,y) \rightarrow (1,0)} x + y = 1 \\
& \|(x-1, y)\| < \delta \Rightarrow |x+y-1| < \epsilon \\
& \quad \blacksquare |x-1| \leq \|(x-1, y)\| < \delta \\
& \quad \blacksquare |y| \leq \|(x-1, y)\| < \delta \\
& |x+y-1| \leq |x-1| + |y| < 2 \cdot \delta \Rightarrow \\
& \delta = \frac{\epsilon}{2}
\end{aligned}$$

$$\begin{aligned}
b) \quad & \lim_{(x,y) \rightarrow (-1,8)} xy = -8 \\
& \|(x+1, y-8)\| < \delta \Rightarrow |xy+8| < \epsilon \\
& \quad \blacksquare |x+1| \leq \|(x+1, y-8)\| < \delta \\
& \quad \blacksquare |y-8| \leq \|(x+1, y-8)\| < \delta \\
& |xy+8| = |((x+1)-1)((y-8)+8)+8| = \\
& |(x+1)(y-8) + (x+1)(8) + (-(y-8)) - 8 + 8| = \\
& |(x+1)(y-8) + (x+1)(8) + (-(y-8))| \stackrel{DesigualdadTriangular}{\leq} \\
& |(x+1)(y-8)| + 8|x+1| + |y-8| < \\
& \delta \cdot \delta + 8\delta + \delta = \delta^2 + 9\delta \stackrel{\delta \leq 1}{\equiv} \\
& 10\delta \Rightarrow \delta = \frac{\epsilon}{10}
\end{aligned}$$

$$\begin{aligned}
2. \quad a) \quad & \epsilon = 1 \Rightarrow \delta = \frac{1}{10} \\
b) \quad & \epsilon = \frac{1}{100} \Rightarrow \delta = \frac{1}{1000}
\end{aligned}$$