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$$(1) \lim_{x \rightarrow 1} \frac{x-1}{x-\sqrt{2-x}} = \frac{0}{0} \Rightarrow \text{Indetermination}$$

L'Hopital

$$= \lim_{x \rightarrow 1} \frac{1}{1 - \frac{1}{2}(2-x)^{-1/2} \cdot (-1)} = \lim_{x \rightarrow 1} \frac{1}{1 + \frac{1}{2\sqrt{2-x}}} = \frac{1}{1 + \frac{1}{2}} = \frac{2}{3}$$

$$(2) \lim_{x \rightarrow 0} \frac{x - \ln(1+x)}{x \cdot \ln(1+x)} = \frac{0}{0} \Rightarrow \text{Indeterm.}$$

L'Hopital

$$= \lim_{x \rightarrow 0} \frac{1 - \frac{1}{(1+x)} \cdot 1}{1 \cdot \ln(1+x) + x \cdot \frac{1}{1+x} \cdot 1} = \frac{0}{0} \Rightarrow \text{Indeter}$$

L'Hopital

$$= \lim_{x \rightarrow 0} \frac{1 + \frac{1}{(1+x)^2}}{\frac{1}{1+x} + \frac{1+x-x}{(1+x)^2}} = \frac{\frac{1}{1^2}}{\frac{1}{1} + \frac{1}{1^2}} = \frac{1}{2}$$