I. Find the indicated limits. If a limit does not exist indicate so by writing DNE for your answer. You must show some work to justify your answer. Clearly indicate your answers. (4 each)

(a) $\lim\limits_{x \to 0} f(x)$ where $f(x) = \begin{cases} x^2 - 2, & x \geq 1 \\ x+1, & x < 1 \end{cases}$

(b) Use the same function defined in Part (a) above to find $\lim\limits_{x \to 1} f(x)$

(c) $\lim\limits_{x \to 3^+} \sqrt{9 - x^2}$

(d) $\lim\limits_{x \to 1^-} \dfrac{x-1}{1-x^2}$

(e) $\lim\limits_{t \to 2^+} \dfrac{1-t^2}{t-2}$