1. Determine the infinite limit. Explain your reasoning.

    (a) $\displaystyle\lim_{x\to 3^-} \frac{\sqrt{x}}{x-3}$

    (b) $\displaystyle\lim_{x\to 3^+} \frac{\sqrt{x}}{x-3}$

    (c) $\displaystyle\lim_{x\to 3^+} \frac{2-10x}{x-3}$

    (d) $\displaystyle\lim_{x\to 3^+} \ln(x-3)$

    (e) Why didn't we ask you to find $\displaystyle\lim_{x\to 3^-} \ln(x-3)$?

2. Let $f(x) = 8 - x^2$ have domain $(-\infty, 1) \cup (1, \infty)$. Sketch $f(x)$ and explain why $f(x)$ has a limit as x approaches 1 even though $f(x)$ is undefined at $x = 1$.