9. $f(x) = \dfrac{x^2 - 1}{|x^2 - 1|} = \begin{cases} -1 & \text{if } -1 < x < 1 \\ 1 & \text{if } x < -1 \text{ or } x > 1 \end{cases}$.

f is continuous wherever it is defined, that is at all points except $x = \pm 1$. f has left and right limits -1 and 1, respectively, at $x = 1$, and has left and right limits 1 and -1, respectively, at $x = -1$. It is not, however, discontinuous at any point, since -1 and 1 are not in its domain.