1. Sketch the graph of the function in the provided grid and from its graph, determine at what $x$ values is the function discontinuous, and what are the types of discontinuity?

$$f(x) = \begin{cases} 
2, & x < 0 \\
2 - x, & 0 < x < 1 \\
x, & 1 \leq x \leq 2 \\
3, & 2 < x 
\end{cases}$$

2. Where is the function $f(x) = \frac{\sin(x)}{x-3} + \frac{x-1}{x^2+9}$ continuous?
3. Using the definition of a derivative, for \( f(x) = x^2 \), find \( f'(3) \).

4. Using the definition of a derivative, for \( y = \frac{1}{x+2} \), find \( \frac{dy}{dx} \).