

EXAMPLES:

1. IS $f(x) = \begin{cases} 2x+1 & x \geq 3 \\ x^2+2 & x < 3 \end{cases}$

DIFFERENTIABLE AT $x=3$?

2. IS $f(x) = \begin{cases} x+1 & x \leq 0 \\ 1-x^2 & x > 0 \end{cases}$

DIFFERENTIABLE AT $x=0$?

3. IS $f(x) = \begin{cases} 2x+1 & x < 0 \\ (x+1)^2 & x \geq 0 \end{cases}$

DIFFERENTIABLE AT $x=0$?

4. IS $f(x) = x^{\frac{1}{3}}$ DIFFERENTIABLE
AT $x=0$?