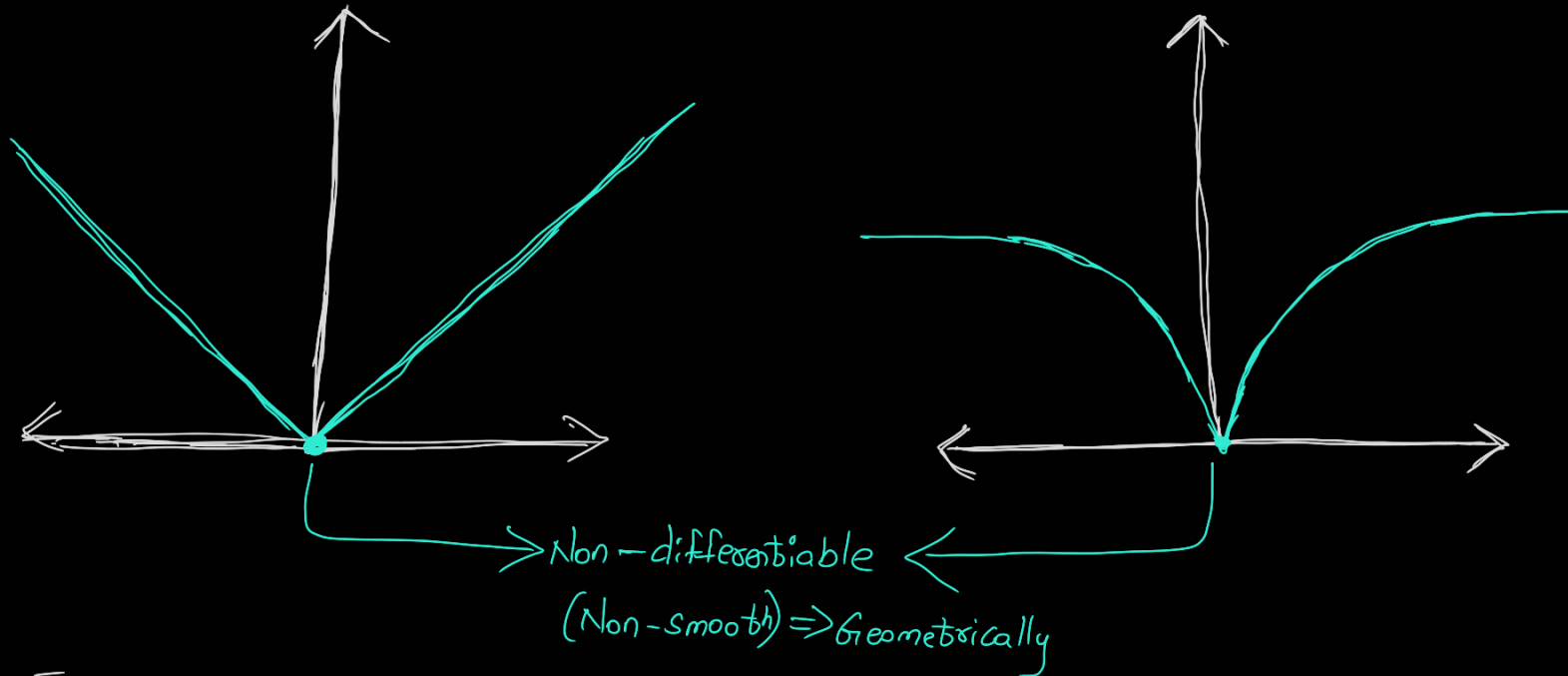


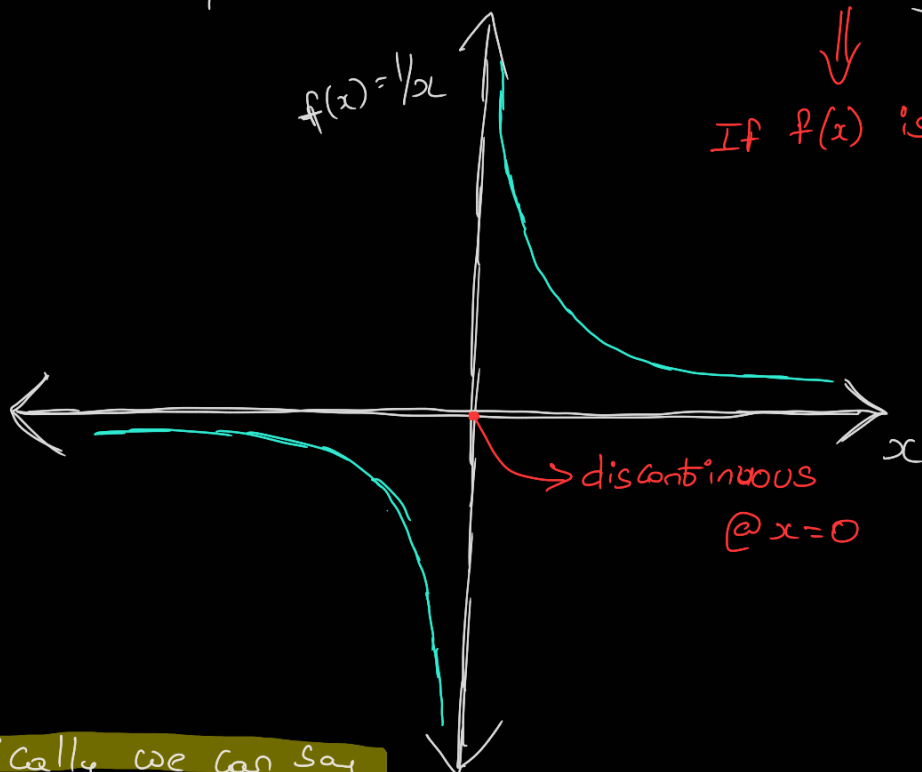
Differentiability of functions

We saw previously that $\text{abs}(x)$ is not differentiable at $x=0$

$$\Downarrow$$
$$\lim_{x \rightarrow 0} \frac{|x+\Delta x| - |x|}{\Delta x} \Big|_{x=0} \text{ is not defined}$$



There is one more place where non-differentiability occurs.



\Downarrow
If $f(x)$ is discontinuous

So, Geometrically we can say

$f(x)$ is differentiable if $f(x)$ is continuous and smooth.