### 3.2 Differentiability

*Are you able to find a derivative?
*Is there a derivative?
*Can you find the slope at the point?
*Is there a tangent line?


There are 4 types of non-differentiability:

3. Vertical Tangent

$\begin{aligned} \rightarrow x & =0 \\ m & =\text { undefined }\end{aligned}$


4. Discontinuity


Differentiable

1. Continuous
2. Left-hand and Right-hand derivatives (slopes) must be equal.

Differentiable?


Differentiability Implies Continuity
$x=$ a $\begin{aligned} \text { Slop g } a t x & =10001 \\ m & =-9099 \\ & =-1\end{aligned}$
Is the opposite true?
If continuous, theindifferentiable?

