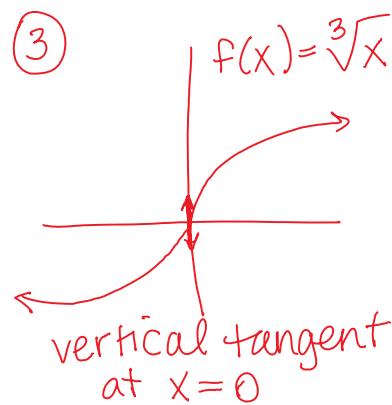- Opener - Graphs - Match f(x) w Derivative (Handout)
- 3.2 Differentiability

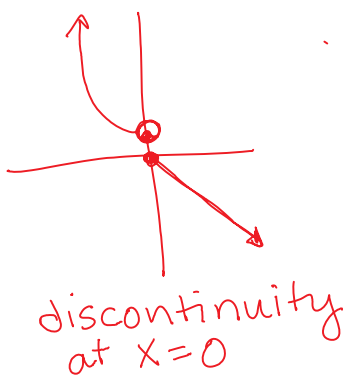DON'T LEAVE YET
THERE'S STILL .04 SECONDS LEFT IN CLASS
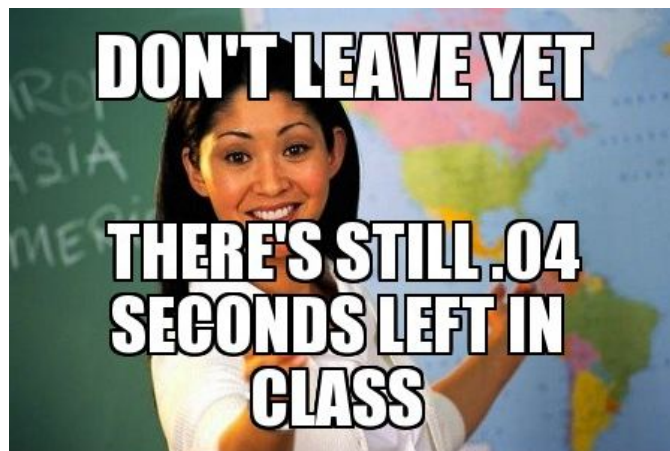
3.2 - Differentiability

✱ most functions are _differentiable_ (have a derivative) on their domain

Exceptions

① $f(x) = |x|$

corner @ x=0

② $f(x) = x^{\frac{2}{3}}$

cusp (sharp corner) @x=0

③ $f(x) = \sqrt[3]{x}$

vertical tangent at x=0
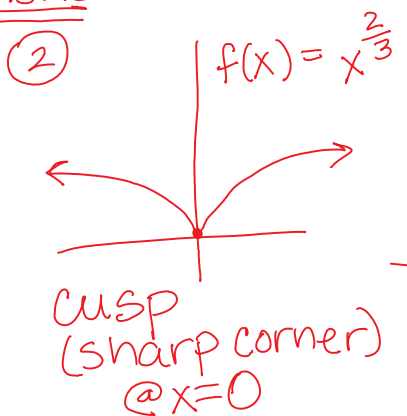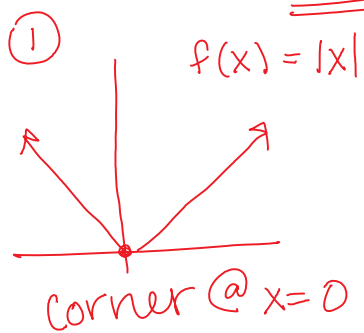
④ $f(x) = \begin{cases} x^2+1 & x<0 \\ -x & x \geq 0 \end{cases}$

✱ _any_ discontinuity!

discontinuity at x=0

✱ To be differentiabe, Must be continuous. Reverse not neccessarily true! (i.e. $f(x)=|x|$ is continuous but not diff. at x=0)