Please have your Piecewise handout with you

In notes: Other Trig Derivatives

Find the derivative of csc(x) = $\frac{1}{\sin x}$

$\frac{d}{dx}\csc x = -\csc(x)\cdot\cot(x)$

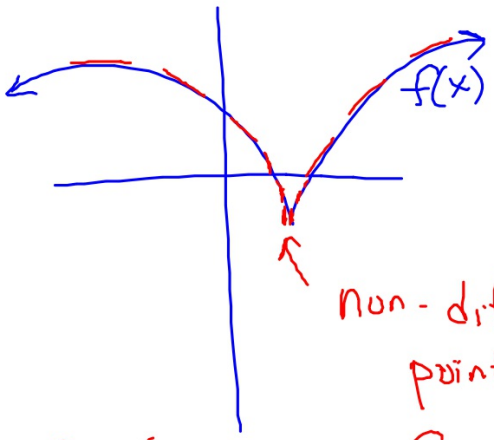
sec(x) = $\frac{1}{\cos(x)}$ $\quad \frac{d}{dx}\sec x = \sec(x)\cdot\tan(x)$

cot(x) = $\frac{f}{g}$ $\frac{\cos x}{\sin x}$ $\quad \frac{-\sin\cdot\sin - \cos\cdot\cos}{\sin^2 x} \rightarrow \frac{-\sin^2 x - \cos^2 x}{\sin^2 x}$

$\frac{-1(\sin^2 x + \cos^2 x)}{\sin^2 x}$ $\quad 1$

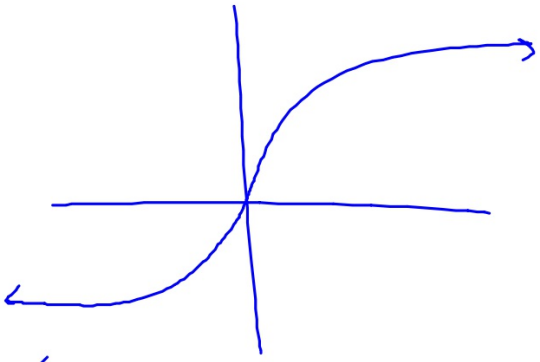
$\frac{d}{dx}\cot(x) = -\csc^2(x)$

f	f'	f	f'
$\sin$	$\cos$	$\csc$	$-\csc \cdot \cot$
$\cos$	$-\sin$	$\sec$	$\sec \cdot \tan$
$\tan$	$\sec^2$	$\cot$	$-\csc^2$



A function f is differentiable if its derivative f' is continuous.

$f(x) = \sqrt[3]{x}$

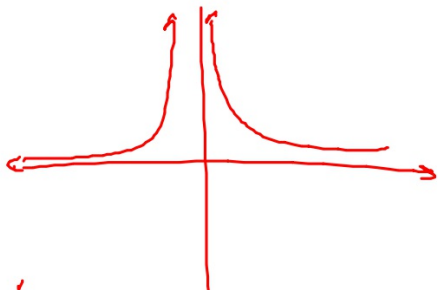


(Cont)

$f'(x) = \frac{1}{3}x^{-2/3}$

$f' = \frac{1}{3\sqrt[3]{x^2}}$

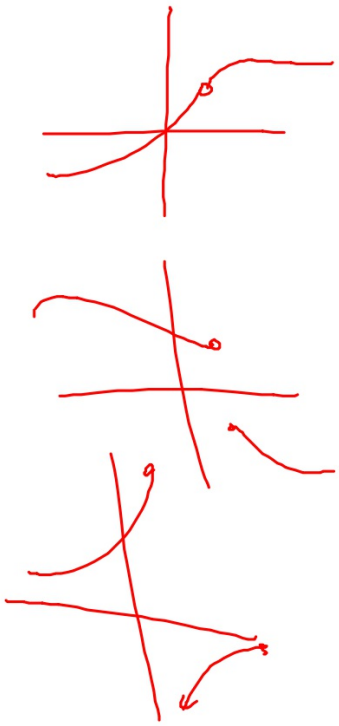
f' is not ~~defined~~ defined @ $x = 0$.



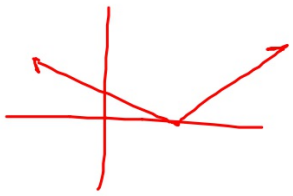
discontinuous derivative.

So f is not diff

Disc. function $\xrightarrow{\text{have}}$ a Cont. derivative



Continuity does not imply differentiability.



Differentiability implies Continuity.