Section 1.4 - limits & continuity of Trig, exponential, & log functions

	continuous on
$\sin(x)$, $\cos(x)$, e^x	$(-\infty, \infty)$
$\ln(x)$	$(0, \infty)$
$\log_a(x) = \frac{\ln(x)}{\ln(a)}$	$(0, \infty)$

By quotient property - $\tan x$, $\cot x$, $\sec x$, and $\csc x$ are continuous in each of their [illegible]

Squeeze Theorem

if $f(x) \leq g(x) \leq h(x)$ for all x (in an interval that has c (ex[illegible] maybe[illegible]

& if $\lim_{x \to c} f(x) = \lim_{x \to c} h(x) = L$ then $\lim_{x \to c} g(x) = L$

Important limits

- $\lim_{\theta \to 0} \frac{\sin\theta}{\theta} = 1$
- $\lim_{\theta \to 0} \frac{\cos\theta - 1}{\theta} = 0$

* remember, θ can be a variety of things

* has to be limit i.e. $\frac{\sin\theta}{\theta} \neq 1$

ex: $\lim_{x \to \pi} \ln(\cos^2 x) = \ln(\cos^2 \pi) = \ln((-1)^2) =$

$\ln(1) = 0$

ex Squeeze theorem:

$\lim_{\theta \to 0} \theta^2 \sin \frac{1}{\theta}$

$\theta \neq 0 \rightarrow \theta^2 > 0$

domain of Sin $-1 \leq \sin \frac{1}{\theta} \leq 1$

$-\theta^2 \leq \theta^2 \sin \frac{1}{\theta} \leq \theta^2$

$\lim_{\theta \to 0} -\theta^2 = -0^2 = 0$

$\lim_{\theta \to 0} \theta^2 = 0^2 = 0$

$\lim_{\theta \to 0} \theta^2 \sin \frac{1}{\theta} = 0$

ex:

$\lim_{♡ \to 0} \frac{\sin(I ♡)}{I ♡} = 1$