Math 201
Section 1.6 Continuity of Trigonometric, Exponential, and Inverse Functions

Theorem If c is any number in the natural domain of the stated trigonometric function, then

$$\begin{array}{lll} \lim_{x\to c} \sin(x) = \sin(c) & \lim_{x\to c} \cos(x) = \cos(c) & \lim_{x\to c} \tan(x) = \tan(c) \\ \lim_{x\to c} \csc(x) = \csc(c) & \lim_{x\to c} \sec(x) = \sec(c) & \lim_{x\to c} \cot(x) = \cot(c). \end{array}$$

Theorem Let $b > 0$, $b \neq 1$.

(a) The function b^x is continuous on $(-\infty, \infty)$.

(b) The function $\log_b x$ is continuous on $(0, \infty)$.

The Squeeze Theorem If $f(x) \leq g(x) \leq h(x)$ when x is near a (except possibly at a) and

$$\lim_{x\to a} f(x) = \lim_{x\to a} h(x) = L,$$

then

$$\lim_{x\to a} g(x) = L.$$