Properties of Limits

Math 195

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What are some rules that we can apply to limits?

1 Chiastic rules

1.1 The limit of a sum is the sum of the limits.

$$\lim_{x \to a} (f(x) + g(x)) = \left(\lim_{x \to a} f(x)\right) + \left(\lim_{x \to a} g(x)\right)$$

1.2 The limit of a product is the product of the limits.

$$\lim_{x \to a} (f(x) \cdot g(x)) = \left(\lim_{x \to a} f(x)\right) \cdot \left(\lim_{x \to a} g(x)\right)$$

2 Composition of functions

If f is a continuous function, then

$$\lim_{x \to a} f(g(x)) = f\left(\lim_{x \to a} g(x)\right).$$

3 Squeeze theorem