Math 103 Day 7: Trig Derivatives and the Chain Rule

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Outline

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

Chain Rule

If g is differentiable at x and f is differentiable at $g(x)$, then the composition function $F = f \circ g$ defined by $F(x) = f(g(x))$ is differentiable at x and

$$F'(x) = f'(g(x))g'(x)$$

Change of variable rule for limits

If $lim_{x \to 0} f(x) = 0$, then

$$lim_{x \to 0} g(f(x)) = lim_{f(x) \to 0} g(f(x)) = lim_{u \to 0} g(u).$$