Math 1A: Calculus Instructor: Alexander Paulin

Handout: More Differentiation

Discussions 201, 203 // 2018-10-15

Problem 1. Find an expression for $\frac{d}{dx}(f(x)g^{(x)})$.

Problem 2. Use the preceding problem to compute the derivative of $x^{(x^x)}$.

Problem 3. Compute the derivative of $\operatorname{arccot} x$.

Problem 4. Compute the derivative of

$$f(x) = \frac{1}{2} \ln \left(\frac{x+1}{x-1} \right).$$

What are the domains of f and f'?

Problem 5. Find values for *a* and *b* so that the function

$$f(x) = \sin(ax + b)$$

passes through the point (2, 1/2) with slope -1.

Are there multiple choices of a and b that work? Do these choices actually give you different functions f?