Math 101 – WORKSHEET 33
TAYLOR SERIES AND DERIVATIVES

The *Taylor series* of $f(x)$ *centered at* a is

$$\sum_{n=0}^{\infty} \frac{f^{(n)}(a)}{n!}(x-a)^n$$

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(1) Find the MacLaurin series of $f(x) = e^x$.

(2) (Final 2014) Find the Taylor series $g(x) = \log x$ centered at $a = 2$, as well as its radius of convergence.

(3) (Final 2014) Let $\sum_{n=0}^{\infty} c_n x^n$ be the MacLaurin series for e^{3x}. Find c_5.

(4) (Final 2013) Let $f(x) = x^2 \sin(x^3)$. Find $f^{11}(0)$.

Date: 1/4/2016, Worksheet by Lior Silberman. This instructional material is excluded from the terms of UBC Policy 81.