# Quiz 9

Spring 2016

MATH 222-004

**Name:** _____

For full credit please explain all of your answers. **No calculators** are allowed.

**Problem 1.** Find $T_5\{e^{1+t}\}$ using any method you want [**5 points**]. As a reminder $e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!}$.

**Problem 2.** Let $f$ be the real valued function defined below

$$f(x) = \begin{cases} 0 & x \neq 0 \\ 1 & x = 0 \end{cases}$$

If we take the sequence $a_n = \frac{2^n}{n!}$. What is $\lim_{n\to\infty} a_n$? [**2 points**]. Is it true that $\lim_{n\to\infty} f(a_n) = f(\lim_{n\to\infty} a_n)$? [**3 points**] You don't need to use the rigorous definition of a limit to justify your answer, but you do need to discuss how you arrived at your decision.