MATH 222(1,2,4) Fall 2015
Quiz 9 RM

Name: _____

You will have twenty minutes to take this quiz. Read the instructions carefully. There are more questions on the back of this page.

**1.** (*4 points*) *You do not need to show your work. Only the answer will be graded.*
For each of the following, circle true or false:

| | | |
|---|---|---|
| $\lim_{n\to\infty} \dfrac{14n+2+7^n}{100n^7+6n-2} = 0$ | True | False |
| $\lim_{n\to\infty} \sum_{k=1}^{n} \left(\dfrac{-1}{2}\right)^k$ exists and is finite. | True | False |
| $\lim_{n\to\infty} \sum_{k=1}^{n} \dfrac{k}{2^k}$ exists and is finite. | True | False |
| $\lim_{n\to\infty} \dfrac{8-15n^2}{n^2-n+6} = 15$ | True | False |

**2.** (*6 points*) *Show your work. Partial credit may be awarded.*
Find a bound on $R_n e^x$ which is valid for $x$ satisfying $-2 \leq x \leq 0$ and use this to show that $e^{-2} = \sum_{k=0}^{\infty} \frac{(-2)^k}{k!}$.