Printed Name _____ Signature _____

Calculus II Quiz #6

Show your work and clearly label your answers on this quiz. *No scrap paper, calculators, or notes are allowed* (or needed). This quiz is scored out of 45 points. (There are 57 points possible.) You have 60 minutes to complete the quiz.

To get credit on a problem, you *must* show work. Even if you can do the work in your head, the point of these exercises is to get you to articulate your thought processes.

(3 pts each test) For each series in #1-3, use at least three different tests to attempt to answer if the series converges absolutely, converges conditionally, or diverges; if the test fails to give information, also say that. (You must attempt each test at least once over the three problems.)

(a) integral test;

(b) comparison test;

(c) alternating series test;

(c) ratio test;

(d) root test.

Problem 1 $\sum_{n=1}^{\infty} \frac{3}{2^n}$

Problem 2 $\sum_{n=1}^{\infty} \frac{\sin(\frac{n\pi}{2})}{n}$

Problem 3 $\sum_{n=1}^{\infty} \frac{(-3)^n}{n}$

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(5+5+5 pts each) For each function, give:

(a) the fourth degree MacLaurin polynomial;

(b) the fourth degree Taylor polynomial around $a = 4$;

(c) the interval of convergence for the Taylor series in (b).

Problem 4 $f(x) = \ln(x + 2)$

Problem 5 $g(x) = \sqrt{x + 5}$