

Name: _____

Math 252 Calculus II (Bueler)

Wednesday 25 April 2018

Quiz #12

In class. 25 minutes. No textbook or notes or calculator. 30 points total.

1. Find the radius and interval of convergence of the following power series. Show work which justifies your answer.

(a) (8 pts)

$$\sum_{n=1}^{\infty} \frac{(-1)^n 4^n}{\sqrt{n}} x^n$$

(b) (8 pts)

$$\sum_{n=1}^{\infty} \frac{(x-2)^n}{n^n}$$

- 2.** (5 pts) Based on your knowledge of geometric series, find a power series representation for the function and determine the interval of convergence.

$$f(x) = \frac{2}{3-x}$$

- 3. (a)** (5 pts) Use differentiation to find a power series representation for

$$f(x) = \frac{1}{(1+x)^2}$$

- (b)** (4 pts) What is the radius of convergence of the power series in part **(a)**? Why?