

# Math 1497 – Calculus II Spring 2022 – Homework 7

## Week 8: Mar. 8-12, 2021

pg. 658, #15, 17, 19, 21, 25, and 29.

Find the interval of convergence for the following power series. (Be sure to check for endpoint convergence).

$$15. \sum_{n=0}^{\infty} \left(\frac{x}{4}\right)^n$$

$$19. \sum_{n=0}^{\infty} \frac{x^{5n}}{n!}$$

$$25. \sum_{n=1}^{\infty} \frac{(-1)^{n+1}(x-4)^n}{n9^n}$$

$$17. \sum_{n=1}^{\infty} \frac{(-1)^n x^n}{n}$$

$$21. \sum_{n=0}^{\infty} (2n)! \left(\frac{x}{3}\right)^n$$

$$29. \sum_{n=1}^{\infty} \frac{(x-3)^{n-1}}{3^{n-1}}$$

pg. 648-9, #21, 23, 25, 27, 29 and 31.

Find the  $n^{\text{th}}$  Taylor polynomial, centered at  $c$  and the remainder for the following:

$$21. f(x) = xe^x, \quad n = 4, \quad c = 0$$

$$25. f(x) = \sec x, \quad n = 2, \quad c = 0$$

$$29. f(x) = \sqrt{x}, \quad n = 2, \quad c = 4$$

$$23. f(x) = \frac{1}{1-x}, \quad n = 5, \quad c = 0$$

$$27. f(x) = \frac{2}{x}, \quad n = 3, \quad c = 1$$

$$31. f(x) = \ln x, \quad n = 4, \quad c = 2$$

**Due:** Friday Mar. 11, 2022 by 4pm.