9. [10 points]

a. [7 points] Determine the **radius** of convergence for the following power series. Show all of your work. You do not need to find the interval of convergence.

$$\sum_{n=1}^{\infty}(-1)^n \frac{(3n)!}{5^n((n+1)!)^3}(x-4)^{2n}$$

Answer: _____

b. [3 points] Suppose the power series $\sum_{n=0}^{\infty} C_n(x-a)^n$ has radius of convergence 3, and that the series diverges for $x = 7$ and converges for $x = 10$. Which of the following could be the value of a? Circle **all** correct options.

i. 4 ii. 7 iii. 10 iv. 13 v. 16 vi. NONE OF THESE