3. [10 points] Consider the power series

$$\sum_{n=0}^{\infty} \frac{(n!)^2}{5^n (2n)!} (x - 9)^n.$$

a. [1 point] What is the center of the interval of convergence of this power series?

Answer: _____

b. [5 points] What is the radius of convergence of this power series? Show your work.

Answer: Radius of convergence = _____

c. [4 points] A certain power series $\sum_{n=1}^{\infty} C_n (x - 4)^n$ converges when $x = 1$ and diverges when $x = 13$. Which of the following could be the radius of converge of this series? Circle <u>all</u> possibilities from the list below.

      0   1   3   7   9   13 ∞ NONE OF THESE