

5. [8 points] Consider

$$\sum_{n=1}^{\infty} \frac{n}{4^n(n+1)} x^{2n}.$$

a. [2 points] Does the series converge for $x = 2$? Justify your answer.

b. [2 points] Based only on your answer from part a, what can you say about R , the radius of convergence of the series? Circle your answer.

c. [4 points] Find the interval of convergence of the series.