

MATH 101 V2A – Homework

March 9th

1. Use the Ratio Test to solve the following problems.

(a) Show that the series $\sum_{n=1}^{\infty} ne^{-n}$ is convergent.

(b) For which values of $x \geq 0$ is the series $\sum_{n=1}^{\infty} nx^n$ convergent?

(c) For which values of $x \geq 0$ is the series $\sum_{n=1}^{\infty} nx^n$ divergent?

In the video the Ratio Test is used to show that the series $\sum_{n=1}^{\infty} \frac{x^n}{n!}$ converges for all $x \geq 0$.

Watch the video and solve the above problems. You do NOT have to hand anything in for this homework assignment, but you may be asked to contribute to the solution on the board. Your grade will be based primarily on participation rather than the correctness of your work, provided you demonstrate that you have watched the video.