

MATH 101 V2A – Homework

February 2nd

1. Explain why the calculation

$$\int_{-1}^1 \frac{1}{t^2} dt = \left. \frac{-1}{t} \right|_{-1}^1 = -2$$

is invalid.

2. Find an example of a function $f(t)$ such that the integral $\int_{-1}^1 f(t)dt$ is a convergent, improper integral.

In the video the integral $\int_{-1}^1 \frac{1}{t^2} dt$ is shown to be divergent. Watch the video and, if needed, use the hints given at the end of the video to help you 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.