

MA 3426
Assignment 4
Due never

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1. Solve the initial value problem

$$u(0, x) = \sqrt{1 + x^2}$$

for Burgers' Equation for $-1 < t < 1$. What is

$$\lim_{t \rightarrow 1^-} u(t, x)?$$

2. Prove that

$$u(t, x) = \begin{cases} -1 & \text{if } -1 < x < 1 - t, \\ (x - 1)/t & \text{if } \max(1 - t, 1 + t - \sqrt{8t}) < x < 1 + t, \\ 1 & \text{otherwise} \end{cases}$$

is an *admissible* solution of Burgers' Equation for $t > 0$.