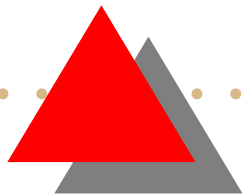# *Math 2E03- Introduction to Modelling*

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Problem 4

If a uniform stretched string vibrates in a fixed plane containing its equilibrium position, and the transverse displacement u of the string in this plane remains small, then u is the solution of wave equation under the following set up

$u_{tt} = c^2 u_{xx}$ where $c = \sqrt{T/\sigma}$, with T tension and σ is linear density

$u(x, 0) = x$, $u_t(x, 0) = 0$

and string of finite length L be clamped rigidly at each end. Then find out the solution of this model.