

## Exercise 38

Solve the telegraph equation

$$\begin{aligned}u_{tt} - c^2 u_{xx} + 2au_t &= 0, & -\infty < x < \infty, t > 0, \\u(x, 0) &= 0, & u_t(x, 0) = g(x), & -\infty < x < \infty.\end{aligned}$$