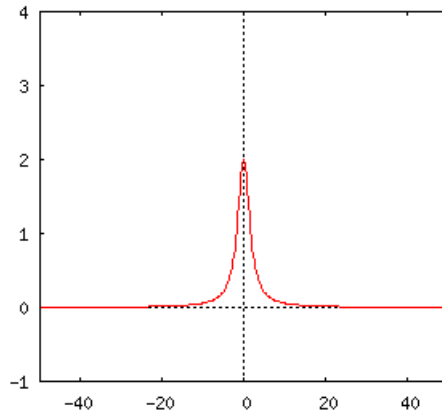


A progressive wave pulse on a string is described by the function,

$$y(x, t = 0) = \frac{\lambda a^2}{x^2 + a^2}$$

What will be the amplitude and the wave function representing the pulse at time  $t$ , if the pulse is propagating along positive  $x$ -axis with speed  $v$  m/s?

*Solution*



$$A = y(x = 0, t = 0) = \frac{\lambda a^2}{0^2 + a^2} = \lambda$$

Replacing  $x$  by  $x - vt$  to find  $y(x, t)$ ,

$$y(x, t) = \frac{\lambda a^2}{(x - vt)^2 + a^2}$$