6. Extra credit

EC

0 points possible (ungraded)

Let $u(x,t)$ denote the vertical displacement at time t and position x of an infinitely long string. Suppose that $u(x,t)$ satisfies

$$\frac{\partial^2 u}{\partial t^2} = 9\frac{\partial^2 u}{\partial x^2}.$$

The initial waveform at $t = 0$ is a horizontal line with vertical displacement 0 (that is $u(x,0) = 0$), but initial vertical velocity at x is $\cos(x)$. Find a formula for $u(x,t)$.

$u(x,t) =$ (sin(x+3*t)-sin(x-3*t))/6 ✔

$$\frac{\sin(x+3\cdot t)-\sin(x-3\cdot t)}{6}$$

FORMULA INPUT HELP

Submit You have used 2 of 3 attempts

✔ Correct