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$$\frac{\partial^2 u}{\partial t^2} = a^2 \frac{\partial^2 u}{\partial x^2} \qquad (1)$$

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$$T \cdot \sin(\varphi + \Delta\varphi) - T\sin\varphi \qquad (2)$$

,
$$\sin\varphi \approx tg\,\varphi = \frac{\partial u}{\partial x}$$

,   , $\vdots$
$$T\frac{\partial u(x+\Delta x;t)}{\partial x} - T\frac{\partial u(x;t)}{\partial x} \approx T\frac{\partial^2 u(x;t)}{\partial x^2} \qquad (3)$$

(   )
. ρ ,

Δx $\rho\Delta x$.   ,   :
$$\rho\Delta x\frac{\partial^2 u}{\partial t^2} = T\frac{\partial^2 u}{\partial x^2}\Delta x$$

$$\frac{\partial^2 u}{\partial t^2} = a^2\frac{\partial^2 u}{\partial x^2} \qquad (4)$$

$a^2 = \dfrac{T}{\rho}$.
(4)

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