

3ađ.1

$$\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = D$$

$$\left| \begin{array}{l} x \in (0, a) \\ y \in (0, b) \end{array} \right.$$

$$\left| \begin{array}{l} -\partial_y u(x, 0) = \partial_y u(x, b) = 0 \end{array} \right.$$

$$\left| \begin{array}{l} u(0, y) = \cos \frac{\pi y}{b} \end{array} \right.$$

$$\left| \begin{array}{l} \partial_x u(a, y) = 0 \end{array} \right.$$

a.) $D = 0$

b.) $D = 2$

3ađ.2

$$\frac{\partial^2 u}{\partial x^2} - \frac{\partial u}{\partial t} = -D$$

$$\left| \begin{array}{l} x \in (0, \pi) \\ t \in [0, +\infty) \end{array} \right.$$

$$\left| \begin{array}{l} -\partial_x u(0, t) = \partial_x u(\pi, t) = 0 \end{array} \right.$$

$$\left| \begin{array}{l} u(x, 0) = 2t3 \cos 2x \end{array} \right.$$

a.) $D = 1$

b.) $D = \cos x$