

Вариант 1.

$$\begin{cases} u_t = 4u_{xx} + 2tx + 2\cos\frac{5\pi x}{2}, 0 < x < 1, \quad t > 0, \\ u_x(0, t) = t^2 + 1, \\ u(1, t) = t^2, \\ u(x, 0) = x - 1. \end{cases}$$

1.

$$\begin{cases} u_t = u_{xx} + e^t \cos 2x, \quad t > 0, -\infty < x < +\infty, \\ u(x, 0) = 2 + \frac{1}{5} \cos 2x \end{cases}$$

2.

$$\begin{cases} \frac{1}{3}u_t = u_{xx}, \quad x > 0, t > 0, \\ u(0, t) = 0; \quad u(x, 0) = \begin{cases} 3, & 0 < x < 2, \\ 0, & x > 2. \end{cases} \end{cases}$$

3.

$$\begin{cases} \Delta u = 0, \quad r > 1, \\ \frac{\partial u}{\partial r}(1, \varphi) = 2 \cos \varphi (\sin \varphi - 1). \end{cases}$$

4.

$$\begin{cases} \Delta u = 0, \quad 0 < x < \frac{\pi}{2}, \quad y > 0, \\ u(0, y) = u(\frac{\pi}{2}, y) = 0, \\ u(x, 0) = \sin 2x + 3 \sin 8x \\ |u(x, y)| < const \end{cases}$$

5.