

Задача С- 1 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{9}u_{tt} = 0, \quad t > 0, \quad 0 < x < 1, \\ u|_{t=0} = \frac{1}{2} \sin(3\pi x), \quad 0 \leq x \leq 1, \\ u_t|_{t=0} = \frac{1}{3} \sin(2\pi x), \quad 0 \leq x \leq 1, \\ u|_{x=0} = 0, \quad u|_{x=1} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 2 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{16}u_{tt} = 0, \quad t > 0, \quad 0 < x < 2, \\ u|_{t=0} = \frac{1}{3} \sin \frac{4\pi x}{2}, \quad 0 \leq x \leq 2, \\ u_t|_{t=0} = \frac{1}{4} \sin \frac{3\pi x}{2}, \quad 0 \leq x \leq 2, \\ u|_{x=0} = 0, \quad u|_{x=2} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 3 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{25}u_{tt} = 0, \quad t > 0, \quad 0 < x < 3, \\ u|_{t=0} = \frac{1}{4} \sin \frac{5\pi x}{3}, \quad 0 \leq x \leq 3, \\ u_t|_{t=0} = \frac{1}{5} \sin \frac{4\pi x}{3}, \quad 0 \leq x \leq 3, \\ u|_{x=0} = 0, \quad u|_{x=3} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 4 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{36}u_{tt} = 0, \quad t > 0, \quad 0 < x < 4, \\ u|_{t=0} = \frac{1}{5} \sin \frac{6\pi x}{4}, \quad 0 \leq x \leq 4, \\ u_t|_{t=0} = \frac{1}{6} \sin \frac{5\pi x}{4}, \quad 0 \leq x \leq 4, \\ u|_{x=0} = 0, \quad u|_{x=4} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 5 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{49}u_{tt} = 0, \quad t > 0, \quad 0 < x < 5, \\ u|_{t=0} = \frac{1}{6} \sin \frac{7\pi x}{5}, \quad 0 \leq x \leq 5, \\ u_t|_{t=0} = \frac{1}{7} \sin \frac{6\pi x}{5}, \quad 0 \leq x \leq 5, \\ u|_{x=0} = 0, \quad u|_{x=5} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 6 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{64}u_{tt} = 0, \quad t > 0, \quad 0 < x < 6, \\ u|_{t=0} = \frac{1}{7} \sin \frac{8\pi x}{6}, \quad 0 \leq x \leq 6, \\ u_t|_{t=0} = \frac{1}{8} \sin \frac{7\pi x}{6}, \quad 0 \leq x \leq 6, \\ u|_{x=0} = 0, \quad u|_{x=6} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 7 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{81}u_{tt} = 0, \quad t > 0, \quad 0 < x < 7, \\ u|_{t=0} = \frac{1}{8} \sin \frac{9\pi x}{7}, \quad 0 \leq x \leq 7, \\ u_t|_{t=0} = \frac{1}{9} \sin \frac{8\pi x}{7}, \quad 0 \leq x \leq 7, \\ u|_{x=0} = 0, \quad u|_{x=7} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 8 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{100}u_{tt} = 0, \quad t > 0, \quad 0 < x < 8, \\ u|_{t=0} = \frac{1}{9} \sin \frac{10\pi x}{8}, \quad 0 \leq x \leq 8, \\ u_t|_{t=0} = \frac{1}{10} \sin \frac{9\pi x}{8}, \quad 0 \leq x \leq 8, \\ u|_{x=0} = 0, \quad u|_{x=8} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 9 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{121}u_{tt} = 0, \quad t > 0, \quad 0 < x < 9, \\ u|_{t=0} = \frac{1}{10} \sin \frac{11\pi x}{9}, \quad 0 \leq x \leq 9, \\ u_t|_{t=0} = \frac{1}{11} \sin \frac{10\pi x}{9}, \quad 0 \leq x \leq 9, \\ u|_{x=0} = 0, \quad u|_{x=9} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 10 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{9}u_{tt} = 0, \quad t > 0, \quad 0 < x < 10, \\ u|_{t=0} = \frac{1}{2} \sin \frac{3\pi x}{10}, \quad 0 \leq x \leq 10, \\ u_t|_{t=0} = \frac{1}{3} \sin \frac{2\pi x}{10}, \quad 0 \leq x \leq 10, \\ u|_{x=0} = 0, \quad u|_{x=10} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 11 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{16}u_{tt} = 0, \quad t > 0, \quad 0 < x < 11, \\ u|_{t=0} = \frac{1}{3} \sin \frac{4\pi x}{11}, \quad 0 \leq x \leq 11, \\ u_t|_{t=0} = \frac{1}{4} \sin \frac{3\pi x}{11}, \quad 0 \leq x \leq 11, \\ u|_{x=0} = 0, \quad u|_{x=11} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 12 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{25}u_{tt} = 0, \quad t > 0, \quad 0 < x < 12, \\ u|_{t=0} = \frac{1}{4} \sin \frac{5\pi x}{12}, \quad 0 \leq x \leq 12, \\ u_t|_{t=0} = \frac{1}{5} \sin \frac{4\pi x}{12}, \quad 0 \leq x \leq 12, \\ u|_{x=0} = 0, \quad u|_{x=12} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 13 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{36}u_{tt} = 0, \quad t > 0, \quad 0 < x < 13, \\ u|_{t=0} = \frac{1}{5} \sin \frac{6\pi x}{13}, \quad 0 \leq x \leq 13, \\ u_t|_{t=0} = \frac{1}{6} \sin \frac{5\pi x}{13}, \quad 0 \leq x \leq 13, \\ u|_{x=0} = 0, \quad u|_{x=13} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 14 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{49}u_{tt} = 0, \quad t > 0, \quad 0 < x < 14, \\ u|_{t=0} = \frac{1}{6} \sin \frac{7\pi x}{14}, \quad 0 \leq x \leq 14, \\ u_t|_{t=0} = \frac{1}{7} \sin \frac{6\pi x}{14}, \quad 0 \leq x \leq 14, \\ u|_{x=0} = 0, \quad u|_{x=14} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 15 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{64}u_{tt} = 0, \quad t > 0, \quad 0 < x < 15, \\ u|_{t=0} = \frac{1}{7} \sin \frac{8\pi x}{15}, \quad 0 \leq x \leq 15, \\ u_t|_{t=0} = \frac{1}{8} \sin \frac{7\pi x}{15}, \quad 0 \leq x \leq 15, \\ u|_{x=0} = 0, \quad u|_{x=15} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 16 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{81}u_{tt} = 0, \quad t > 0, \quad 0 < x < 16, \\ u|_{t=0} = \frac{1}{8} \sin \frac{9\pi x}{16}, \quad 0 \leq x \leq 16, \\ u_t|_{t=0} = \frac{1}{9} \sin \frac{8\pi x}{16}, \quad 0 \leq x \leq 16, \\ u|_{x=0} = 0, \quad u|_{x=16} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 17 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{100}u_{tt} = 0, \quad t > 0, \quad 0 < x < 17, \\ u|_{t=0} = \frac{1}{9} \sin \frac{10\pi x}{17}, \quad 0 \leq x \leq 17, \\ u_t|_{t=0} = \frac{1}{10} \sin \frac{9\pi x}{17}, \quad 0 \leq x \leq 17, \\ u|_{x=0} = 0, \quad u|_{x=17} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 18 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{121}u_{tt} = 0, \quad t > 0, \quad 0 < x < 18, \\ u|_{t=0} = \frac{1}{10} \sin \frac{11\pi x}{18}, \quad 0 \leq x \leq 18, \\ u_t|_{t=0} = \frac{1}{11} \sin \frac{10\pi x}{18}, \quad 0 \leq x \leq 18, \\ u|_{x=0} = 0, \quad u|_{x=18} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 19 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{9}u_{tt} = 0, \quad t > 0, \quad 0 < x < 19, \\ u|_{t=0} = \frac{1}{2} \sin \frac{3\pi x}{19}, \quad 0 \leq x \leq 19, \\ u_t|_{t=0} = \frac{1}{3} \sin \frac{2\pi x}{19}, \quad 0 \leq x \leq 19, \\ u|_{x=0} = 0, \quad u|_{x=19} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 20 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{16}u_{tt} = 0, \quad t > 0, \quad 0 < x < 20, \\ u|_{t=0} = \frac{1}{3} \sin \frac{4\pi x}{20}, \quad 0 \leq x \leq 20, \\ u_t|_{t=0} = \frac{1}{4} \sin \frac{3\pi x}{20}, \quad 0 \leq x \leq 20, \\ u|_{x=0} = 0, \quad u|_{x=20} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 21 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{25}u_{tt} = 0, \quad t > 0, \quad 0 < x < 21, \\ u|_{t=0} = \frac{1}{4} \sin \frac{5\pi x}{21}, \quad 0 \leq x \leq 21, \\ u_t|_{t=0} = \frac{1}{5} \sin \frac{4\pi x}{21}, \quad 0 \leq x \leq 21, \\ u|_{x=0} = 0, \quad u|_{x=21} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 22 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{36}u_{tt} = 0, \quad t > 0, \quad 0 < x < 22, \\ u|_{t=0} = \frac{1}{5} \sin \frac{6\pi x}{22}, \quad 0 \leq x \leq 22, \\ u_t|_{t=0} = \frac{1}{6} \sin \frac{5\pi x}{22}, \quad 0 \leq x \leq 22, \\ u|_{x=0} = 0, \quad u|_{x=22} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 23 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{49}u_{tt} = 0, \quad t > 0, \quad 0 < x < 23, \\ u|_{t=0} = \frac{1}{6} \sin \frac{7\pi x}{23}, \quad 0 \leq x \leq 23, \\ u_t|_{t=0} = \frac{1}{7} \sin \frac{6\pi x}{23}, \quad 0 \leq x \leq 23, \\ u|_{x=0} = 0, \quad u|_{x=23} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 24 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{64}u_{tt} = 0, \quad t > 0, \quad 0 < x < 24, \\ u|_{t=0} = \frac{1}{7} \sin \frac{8\pi x}{24}, \quad 0 \leq x \leq 24, \\ u_t|_{t=0} = \frac{1}{8} \sin \frac{7\pi x}{24}, \quad 0 \leq x \leq 24, \\ u|_{x=0} = 0, \quad u|_{x=24} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 25 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{81}u_{tt} = 0, \quad t > 0, \quad 0 < x < 25, \\ u|_{t=0} = \frac{1}{8} \sin \frac{9\pi x}{25}, \quad 0 \leq x \leq 25, \\ u_t|_{t=0} = \frac{1}{9} \sin \frac{8\pi x}{25}, \quad 0 \leq x \leq 25, \\ u|_{x=0} = 0, \quad u|_{x=25} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 26 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{100}u_{tt} = 0, \quad t > 0, \quad 0 < x < 26, \\ u|_{t=0} = \frac{1}{9} \sin \frac{10\pi x}{26}, \quad 0 \leq x \leq 26, \\ u_t|_{t=0} = \frac{1}{10} \sin \frac{9\pi x}{26}, \quad 0 \leq x \leq 26, \\ u|_{x=0} = 0, \quad u|_{x=26} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 27 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{121}u_{tt} = 0, \quad t > 0, \quad 0 < x < 27, \\ u|_{t=0} = \frac{1}{10} \sin \frac{11\pi x}{27}, \quad 0 \leq x \leq 27, \\ u_t|_{t=0} = \frac{1}{11} \sin \frac{10\pi x}{27}, \quad 0 \leq x \leq 27, \\ u|_{x=0} = 0, \quad u|_{x=27} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 28 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{144}u_{tt} = 0, \quad t > 0, \quad 0 < x < 28, \\ u|_{t=0} = \frac{1}{11} \sin \frac{12\pi x}{28}, \quad 0 \leq x \leq 28, \\ u_t|_{t=0} = \frac{1}{12} \sin \frac{11\pi x}{28}, \quad 0 \leq x \leq 28, \\ u|_{x=0} = 0, \quad u|_{x=28} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 29 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{169}u_{tt} = 0, \quad t > 0, \quad 0 < x < 29, \\ u|_{t=0} = \frac{1}{12} \sin \frac{13\pi x}{29}, \quad 0 \leq x \leq 29, \\ u_t|_{t=0} = \frac{1}{13} \sin \frac{12\pi x}{29}, \quad 0 \leq x \leq 29, \\ u|_{x=0} = 0, \quad u|_{x=29} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 30 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{196}u_{tt} = 0, \quad t > 0, \quad 0 < x < 30, \\ u|_{t=0} = \frac{1}{13} \sin \frac{14\pi x}{30}, \quad 0 \leq x \leq 30, \\ u_t|_{t=0} = \frac{1}{14} \sin \frac{13\pi x}{30}, \quad 0 \leq x \leq 30, \\ u|_{x=0} = 0, \quad u|_{x=30} = 0, \quad t \geq 0. \end{array} \right.$$

Задача С- 31 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{225}u_{tt} = 0, \quad t > 0, \quad 0 < x < 31, \\ u|_{t=0} = \frac{1}{14} \sin \frac{15\pi x}{31}, \quad 0 \leq x \leq 31, \\ u_t|_{t=0} = \frac{1}{15} \sin \frac{14\pi x}{31}, \quad 0 \leq x \leq 31, \\ u|_{x=0} = 0, \quad u|_{x=31} = 0, \quad t \geq 0. \end{array} \right.$$