Задача А- 1 Решете задачата

$$\left| \begin{array}{l} u_{xx} - \frac{1}{4}u_{tt} = 0, \ t > 0, \ 0 < x < \pi, \\[2mm] u|_{t=0} = 3\sin 2x - 2\sin 3x, \ \ 0 \le x \le \pi, \\[2mm] u_t|_{t=0} = 0, \ \ 0 \le x \le \pi, \\[2mm] u|_{x=0} = 0, \ \ u|_{x=\pi} = 0, \ \ t \ge 0. \end{array} \right.$$

Задача А- 2 Решете задачата

$$u_{xx} - \frac{1}{9}u_{tt} = 0, \ t > 0, \ 0 < x < 2\pi,$$

$$u|_{t=0} = 4\sin\frac{3x}{2} - 3\sin\frac{4x}{2}, \ \ 0 \le x \le 2\pi,$$

$$u_t|_{t=0} = 0, \ \ 0 \le x \le 2\pi,$$

$$u|_{x=0} = 0, \ \ u|_{x=2\pi} = 0, \ \ t \ge 0.$$

Задача А- 3 Решете задачата

$$
\left|
\begin{aligned}
& u_{xx} - \tfrac{1}{16} u_{tt} = 0, \ t > 0, \ 0 < x < 3\pi, \\
& u|_{t=0} = 5 \sin \tfrac{4x}{3} - 4 \sin \tfrac{5x}{3}, \ \ 0 \le x \le 3\pi, \\
& u_t|_{t=0} = 0, \ \ 0 \le x \le 3\pi, \\
& u|_{x=0} = 0, \ \ u|_{x=3\pi} = 0, \ \ t \ge 0.
\end{aligned}
\right.
$$

Задача А- 4 Решете задачата

$$\left|\begin{array}{l} u_{xx} - \frac{1}{25}u_{tt} = 0, \ t > 0, \ 0 < x < 4\pi, \\[2mm] u|_{t=0} = 6\sin\frac{5x}{4} - 5\sin\frac{6x}{4}, \ \ 0 \le x \le 4\pi, \\[2mm] u_t|_{t=0} = 0, \ \ 0 \le x \le 4\pi, \\[2mm] u|_{x=0} = 0, \ \ u|_{x=4\pi} = 0, \ \ t \ge 0. \end{array}\right.$$

Задача A- 5 Решете задачата

$$u_{xx} - \frac{1}{36}u_{tt} = 0, \ t > 0, \ 0 < x < 5\pi,$$

$$u|_{t=0} = 7\sin\frac{6x}{5} - 6\sin\frac{7x}{5}, \ \ 0 \le x \le 5\pi,$$

$$u_t|_{t=0} = 0, \ \ 0 \le x \le 5\pi,$$

$$u|_{x=0} = 0, \ \ u|_{x=5\pi} = 0, \ \ t \ge 0.$$

Задача А- 6 Решете задачата

$$\left|\begin{array}{l} u_{xx} - \frac{1}{49}u_{tt} = 0, \ t > 0, \ 0 < x < 6\pi, \\[2mm] u|_{t=0} = 8\sin\frac{7x}{6} - 7\sin\frac{8x}{6}, \ \ 0 \le x \le 6\pi, \\[2mm] u_t|_{t=0} = 0, \ \ 0 \le x \le 6\pi, \\[2mm] u|_{x=0} = 0, \ \ u|_{x=6\pi} = 0, \ \ t \ge 0. \end{array}\right.$$

Задача A- 7 Решете задачата

$$u_{xx} - \frac{1}{64}u_{tt} = 0, \ t > 0, \ 0 < x < 7\pi,$$

$$u|_{t=0} = 9\sin\frac{8x}{7} - 8\sin\frac{9x}{7}, \ \ 0 \le x \le 7\pi,$$

$$u_t|_{t=0} = 0, \ \ 0 \le x \le 7\pi,$$

$$u|_{x=0} = 0, \ \ u|_{x=7\pi} = 0, \ \ t \ge 0.$$

Задача A- 8 Решете задачата

$$u_{xx} - \frac{1}{81} u_{tt} = 0, \; t > 0, \; 0 < x < 8\pi,$$

$$u|_{t=0} = 10 \sin \frac{9x}{8} - 9 \sin \frac{10x}{8}, \;\; 0 \le x \le 8\pi,$$

$$u_t|_{t=0} = 0, \;\; 0 \le x \le 8\pi,$$

$$u|_{x=0} = 0, \;\; u|_{x=8\pi} = 0, \;\; t \ge 0.$$

Задача А- 9 Решете задачата

$$u_{xx} - \frac{1}{100}u_{tt} = 0, \ t > 0, \ 0 < x < 9\pi,$$

$$u|_{t=0} = 11\sin\frac{10x}{9} - 10\sin\frac{11x}{9}, \ \ 0 \le x \le 9\pi,$$

$$u_t|_{t=0} = 0, \ \ 0 \le x \le 9\pi,$$

$$u|_{x=0} = 0, \ \ u|_{x=9\pi} = 0, \ \ t \ge 0.$$

Задача A- 10 Решете задачата

$$u_{xx} - \frac{1}{4}u_{tt} = 0, \ t > 0, \ 0 < x < 10\pi,$$

$$u|_{t=0} = 3\sin\frac{2x}{10} - 2\sin\frac{3x}{10}, \ \ 0 \le x \le 10\pi,$$

$$u_t|_{t=0} = 0, \ \ 0 \le x \le 10\pi,$$

$$u|_{x=0} = 0, \ \ u|_{x=10\pi} = 0, \ \ t \ge 0.$$

Задача А- 11 Решете задачата

$$\left|\begin{array}{l} u_{xx} - \frac{1}{9}u_{tt} = 0, \ t > 0, \ 0 < x < 11\pi, \\[2mm] u|_{t=0} = 4\sin\frac{3x}{11} - 3\sin\frac{4x}{11}, \ \ 0 \le x \le 11\pi, \\[2mm] u_t|_{t=0} = 0, \ \ 0 \le x \le 11\pi, \\[2mm] u|_{x=0} = 0, \ \ u|_{x=11\pi} = 0, \ \ t \ge 0. \end{array}\right.$$

Задача A- 12 Решете задачата

$$u_{xx} - \frac{1}{16}u_{tt} = 0, \ t > 0, \ 0 < x < 12\pi,$$

$$u|_{t=0} = 5\sin\frac{4x}{12} - 4\sin\frac{5x}{12}, \ \ 0 \le x \le 12\pi,$$

$$u_t|_{t=0} = 0, \ \ 0 \le x \le 12\pi,$$

$$u|_{x=0} = 0, \ \ u|_{x=12\pi} = 0, \ \ t \ge 0.$$

Задача А- 13 Решете задачата

$$\left|\begin{array}{l} u_{xx} - \frac{1}{25} u_{tt} = 0, \ t > 0, \ 0 < x < 13\pi, \\[2mm] u|_{t=0} = 6 \sin \frac{5x}{13} - 5 \sin \frac{6x}{13}, \ \ 0 \le x \le 13\pi, \\[2mm] u_t|_{t=0} = 0, \ \ 0 \le x \le 13\pi, \\[2mm] u|_{x=0} = 0, \ \ u|_{x=13\pi} = 0, \ \ t \ge 0. \end{array}\right.$$

Задача А- 14 Решете задачата

$$u_{xx} - \frac{1}{36}u_{tt} = 0, \ t > 0, \ 0 < x < 14\pi,$$

$$u|_{t=0} = 7\sin\frac{6x}{14} - 6\sin\frac{7x}{14}, \ \ 0 \le x \le 14\pi,$$

$$u_t|_{t=0} = 0, \ \ 0 \le x \le 14\pi,$$

$$u|_{x=0} = 0, \ \ u|_{x=14\pi} = 0, \ \ t \ge 0.$$

Задача А- 15 Решете задачата

$$u_{xx} - \frac{1}{49}u_{tt} = 0, \ t > 0, \ 0 < x < 15\pi,$$

$$u|_{t=0} = 8\sin\frac{7x}{15} - 7\sin\frac{8x}{15}, \ \ 0 \le x \le 15\pi,$$

$$u_t|_{t=0} = 0, \ \ 0 \le x \le 15\pi,$$

$$u|_{x=0} = 0, \ \ u|_{x=15\pi} = 0, \ \ t \ge 0.$$

Задача А- 16 Решете задачата

$$\left|\begin{array}{l} u_{xx} - \frac{1}{64}u_{tt} = 0, \ t > 0, \ 0 < x < 16\pi, \\[2mm] u|_{t=0} = 9\sin\frac{8x}{16} - 8\sin\frac{9x}{16}, \ \ 0 \le x \le 16\pi, \\[2mm] u_t|_{t=0} = 0, \ \ 0 \le x \le 16\pi, \\[2mm] u|_{x=0} = 0, \ \ u|_{x=16\pi} = 0, \ \ t \ge 0. \end{array}\right.$$

Задача A- 17 Решете задачата

$$u_{xx} - \frac{1}{81} u_{tt} = 0, \ t > 0, \ 0 < x < 17\pi,$$

$$u|_{t=0} = 10 \sin \frac{9x}{17} - 9 \sin \frac{10x}{17}, \ \ 0 \le x \le 17\pi,$$

$$u_t|_{t=0} = 0, \ \ 0 \le x \le 17\pi,$$

$$u|_{x=0} = 0, \ \ u|_{x=17\pi} = 0, \ \ t \ge 0.$$

Задача A- 18 Решете задачата

$$u_{xx} - \frac{1}{100}u_{tt} = 0, \ t > 0, \ 0 < x < 18\pi,$$

$$u|_{t=0} = 11\sin\frac{10x}{18} - 10\sin\frac{11x}{18}, \ \ 0 \le x \le 18\pi,$$

$$u_t|_{t=0} = 0, \ \ 0 \le x \le 18\pi,$$

$$u|_{x=0} = 0, \ \ u|_{x=18\pi} = 0, \ \ t \ge 0.$$

Задача А- 19 Решете задачата

$$\left|\begin{array}{l} u_{xx} - \frac{1}{4}u_{tt} = 0, \ t > 0, \ 0 < x < 19\pi, \\[2mm] u|_{t=0} = 3\sin\frac{2x}{19} - 2\sin\frac{3x}{19}, \ \ 0 \le x \le 19\pi, \\[2mm] u_t|_{t=0} = 0, \ \ 0 \le x \le 19\pi, \\[2mm] u|_{x=0} = 0, \ \ u|_{x=19\pi} = 0, \ \ t \ge 0. \end{array}\right.$$

Задача А- 20 Решете задачата

$$u_{xx} - \frac{1}{9}u_{tt} = 0, \ t > 0, \ 0 < x < 20\pi,$$

$$u|_{t=0} = 4\sin\frac{3x}{20} - 3\sin\frac{4x}{20}, \ \ 0 \leq x \leq 20\pi,$$

$$u_t|_{t=0} = 0, \ \ 0 \leq x \leq 20\pi,$$

$$u|_{x=0} = 0, \ \ u|_{x=20\pi} = 0, \ \ t \geq 0.$$

Задача А- 21 Решете задачата

$$\left|\begin{array}{l} u_{xx} - \frac{1}{16}u_{tt} = 0, \ t > 0, \ 0 < x < 21\pi, \\[2mm] u|_{t=0} = 5\sin\frac{4x}{21} - 4\sin\frac{5x}{21}, \ \ 0 \le x \le 21\pi, \\[2mm] u_t|_{t=0} = 0, \ \ 0 \le x \le 21\pi, \\[2mm] u|_{x=0} = 0, \ \ u|_{x=21\pi} = 0, \ \ t \ge 0. \end{array}\right.$$

Задача A- 22 Решете задачата

$$
\left|
\begin{array}{l}
u_{xx} - \frac{1}{25} u_{tt} = 0, \ t > 0, \ 0 < x < 22\pi, \\[2mm]
u|_{t=0} = 6 \sin \frac{5x}{22} - 5 \sin \frac{6x}{22}, \ \ 0 \le x \le 22\pi, \\[2mm]
u_t|_{t=0} = 0, \ \ 0 \le x \le 22\pi, \\[2mm]
u|_{x=0} = 0, \ \ u|_{x=22\pi} = 0, \ \ t \ge 0.
\end{array}
\right.
$$

Задача А- 23 Решете задачата

$$\left|\begin{array}{l} u_{xx} - \frac{1}{36}u_{tt} = 0, \ t > 0, \ 0 < x < 23\pi, \\[2mm] u|_{t=0} = 7\sin\frac{6x}{23} - 6\sin\frac{7x}{23}, \ \ 0 \le x \le 23\pi, \\[2mm] u_t|_{t=0} = 0, \ \ 0 \le x \le 23\pi, \\[2mm] u|_{x=0} = 0, \ \ u|_{x=23\pi} = 0, \ \ t \ge 0. \end{array}\right.$$

Задача А- 24 Решете задачата

$$
\begin{vmatrix}
u_{xx} - \frac{1}{49}u_{tt} = 0, \ t > 0, \ 0 < x < 24\pi, \\[2mm]
u|_{t=0} = 8\sin\frac{7x}{24} - 7\sin\frac{8x}{24}, \ \ 0 \le x \le 24\pi, \\[2mm]
u_t|_{t=0} = 0, \ \ 0 \le x \le 24\pi, \\[2mm]
u|_{x=0} = 0, \ \ u|_{x=24\pi} = 0, \ \ t \ge 0.
\end{vmatrix}
$$

Задача A- 25 Решете задачата

$$\left|
\begin{array}{l}
u_{xx} - \frac{1}{64}u_{tt} = 0, \ t > 0, \ 0 < x < 25\pi, \\[2mm]
u|_{t=0} = 9\sin\frac{8x}{25} - 8\sin\frac{9x}{25}, \ \ 0 \le x \le 25\pi, \\[2mm]
u_t|_{t=0} = 0, \ \ 0 \le x \le 25\pi, \\[2mm]
u|_{x=0} = 0, \ \ u|_{x=25\pi} = 0, \ \ t \ge 0.
\end{array}
\right.$$