

**Практикум по курсам «Основы информатики», «Алгоритмы и структуры данных»**  
**Лабораторная работа № 14 на 2011/12 учебный год: 8 факультет, 1 курс, 1 семестр**

**Вложенные циклы с параметрами. Обход и линеаризация матриц**

Составить программу ввода квадратной матрицы и печати в строку всех ее элементов в заданном ниже порядке следования (обхода). Тип элементов матрицы – целый. Решить задачу на языке Си с применением вложенных циклов с переменными границами. Тестировать программу на нескольких примерах матриц небольшого порядка (до  $7 \times 7$ ) в одном пакете тестов. Работа может выполняться с автоматическим тестированием в системе TEST999. В этом случае к формату ввода и вывода данных предъявляются дополнительные требования.

**Пример результатов работы для варианта 21:**

Введенная матрица:

11 12 13 14  
21 22 23 24  
31 32 33 34  
41 42 43 44

Напечатанная строка:

11 12 13 14 24 34 44 43 42 41 31 21 22 23 33 32

11 12 13 14 15  
21 22 23 24 25  
31 32 33 34 35  
41 42 43 44 45  
51 52 53 54 55

11 12 13 14 15 25 35 45 55 54 53 52 51 41 31 21 22 23 24 34 44 43 42 32 33

**Варианты заданий**

|   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <b>1</b><br><table><tr><td>7</td><td>11</td><td>14</td><td>16</td></tr><tr><td>4</td><td>8</td><td>12</td><td>15</td></tr><tr><td>2</td><td>5</td><td>9</td><td>13</td></tr><tr><td>1</td><td>3</td><td>6</td><td>10</td></tr></table>  | 7  | 11 | 14 | 16 | 4  | 8  | 12 | 15 | 2  | 5  | 9  | 13 | 1  | 3  | 6  | 10 | <b>2</b><br><table><tr><td>7</td><td>4</td><td>2</td><td>1</td></tr><tr><td>11</td><td>8</td><td>5</td><td>3</td></tr><tr><td>14</td><td>12</td><td>9</td><td>6</td></tr><tr><td>16</td><td>15</td><td>13</td><td>10</td></tr></table>  | 7  | 4  | 2  | 1  | 11 | 8  | 5  | 3  | 14 | 12 | 9  | 6  | 16 | 15 | 13 | 10 | <b>3</b><br><table><tr><td>16</td><td>15</td><td>13</td><td>10</td></tr><tr><td>14</td><td>12</td><td>9</td><td>6</td></tr><tr><td>11</td><td>8</td><td>5</td><td>3</td></tr><tr><td>7</td><td>4</td><td>2</td><td>1</td></tr></table>  | 16 | 15 | 13 | 10 | 14 | 12 | 9  | 6  | 11 | 8  | 5  | 3  | 7  | 4  | 2  | 1  | <b>4</b><br><table><tr><td>1</td><td>3</td><td>6</td><td>10</td></tr><tr><td>2</td><td>5</td><td>9</td><td>13</td></tr><tr><td>4</td><td>8</td><td>12</td><td>15</td></tr><tr><td>7</td><td>11</td><td>14</td><td>16</td></tr></table>  | 1  | 3  | 6  | 10 | 2  | 5  | 9  | 13 | 4  | 8  | 12 | 15 | 7  | 11 | 14 | 16 |
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| 4   | 8  | 12 | 15 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2   | 5  | 9  | 13 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1   | 3  | 6  | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7   | 4  | 2  | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11  | 8  | 5  | 3  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14  | 12 | 9  | 6  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16  | 15 | 13 | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16  | 15 | 13 | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14  | 12 | 9  | 6  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11  | 8  | 5  | 3  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
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| 1   | 3  | 6  | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
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| 4   | 8  | 12 | 15 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
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| 4   | 9  | 12 | 14 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3   | 5  | 8  | 13 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1   | 2  | 6  | 7  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10  | 4  | 3  | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11  | 9  | 5  | 2  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 15  | 12 | 8  | 6  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16  | 14 | 13 | 7  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16  | 14 | 13 | 7  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 15  | 12 | 8  | 6  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11  | 9  | 5  | 2  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10  | 4  | 3  | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1   | 2  | 6  | 7  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3   | 5  | 8  | 13 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4   | 9  | 12 | 14 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10  | 11 | 15 | 16 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
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| 7   | 13 | 14 | 16 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 6   | 8  | 12 | 15 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2   | 5  | 9  | 11 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1   | 3  | 4  | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7   | 6  | 2  | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 13  | 8  | 5  | 3  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14  | 12 | 9  | 4  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16  | 15 | 11 | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16  | 15 | 11 | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14  | 12 | 9  | 4  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 13  | 8  | 5  | 3  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7   | 6  | 2  | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1   | 3  | 4  | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2   | 5  | 9  | 11 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 6   | 8  | 12 | 15 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7   | 13 | 14 | 16 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <b>13</b><br><table><tr><td>15</td><td>13</td><td>7</td><td>1</td></tr><tr><td>14</td><td>6</td><td>2</td><td>10</td></tr><tr><td>5</td><td>3</td><td>9</td><td>11</td></tr><tr><td>4</td><td>8</td><td>12</td><td>16</td></tr></table> | 15 | 13 | 7  | 1  | 14 | 6  | 2  | 10 | 5  | 3  | 9  | 11 | 4  | 8  | 12 | 16 | <b>14</b><br><table><tr><td>1</td><td>7</td><td>13</td><td>15</td></tr><tr><td>10</td><td>2</td><td>6</td><td>14</td></tr><tr><td>11</td><td>9</td><td>3</td><td>5</td></tr><tr><td>16</td><td>12</td><td>8</td><td>4</td></tr></table> | 1  | 7  | 13 | 15 | 10 | 2  | 6  | 14 | 11 | 9  | 3  | 5  | 16 | 12 | 8  | 4  | <b>15</b><br><table><tr><td>16</td><td>14</td><td>10</td><td>4</td></tr><tr><td>13</td><td>9</td><td>3</td><td>5</td></tr><tr><td>8</td><td>2</td><td>6</td><td>11</td></tr><tr><td>1</td><td>7</td><td>12</td><td>15</td></tr></table> | 16 | 14 | 10 | 4  | 13 | 9  | 3  | 5  | 8  | 2  | 6  | 11 | 1  | 7  | 12 | 15 | <b>16</b><br><table><tr><td>4</td><td>5</td><td>11</td><td>15</td></tr><tr><td>10</td><td>3</td><td>6</td><td>12</td></tr><tr><td>14</td><td>9</td><td>2</td><td>7</td></tr><tr><td>16</td><td>13</td><td>8</td><td>1</td></tr></table> | 4  | 5  | 11 | 15 | 10 | 3  | 6  | 12 | 14 | 9  | 2  | 7  | 16 | 13 | 8  | 1  |
| 15  | 13 | 7  | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14  | 6  | 2  | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5   | 3  | 9  | 11 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4   | 8  | 12 | 16 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1   | 7  | 13 | 15 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10  | 2  | 6  | 14 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11  | 9  | 3  | 5  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16  | 12 | 8  | 4  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16  | 14 | 10 | 4  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 13  | 9  | 3  | 5  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8   | 2  | 6  | 11 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1   | 7  | 12 | 15 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4   | 5  | 11 | 15 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10  | 3  | 6  | 12 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14  | 9  | 2  | 7  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16  | 13 | 8  | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <b>17</b><br><table><tr><td>7</td><td>6</td><td>5</td><td>16</td></tr><tr><td>8</td><td>1</td><td>4</td><td>15</td></tr><tr><td>9</td><td>2</td><td>3</td><td>14</td></tr><tr><td>10</td><td>11</td><td>12</td><td>13</td></tr></table> | 7  | 6  | 5  | 16 | 8  | 1  | 4  | 15 | 9  | 2  | 3  | 14 | 10 | 11 | 12 | 13 | <b>18</b><br><table><tr><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>6</td><td>1</td><td>2</td><td>11</td></tr><tr><td>5</td><td>4</td><td>3</td><td>12</td></tr><tr><td>16</td><td>15</td><td>14</td><td>13</td></tr></table> | 7  | 8  | 9  | 10 | 6  | 1  | 2  | 11 | 5  | 4  | 3  | 12 | 16 | 15 | 14 | 13 | <b>19</b><br><table><tr><td>1</td><td>2</td><td>9</td><td>10</td></tr><tr><td>4</td><td>3</td><td>8</td><td>11</td></tr><tr><td>5</td><td>6</td><td>7</td><td>12</td></tr><tr><td>16</td><td>15</td><td>14</td><td>13</td></tr></table> | 1  | 2  | 9  | 10 | 4  | 3  | 8  | 11 | 5  | 6  | 7  | 12 | 16 | 15 | 14 | 13 | <b>20</b><br><table><tr><td>13</td><td>12</td><td>11</td><td>10</td></tr><tr><td>14</td><td>7</td><td>8</td><td>9</td></tr><tr><td>15</td><td>6</td><td>3</td><td>2</td></tr><tr><td>16</td><td>5</td><td>4</td><td>1</td></tr></table> | 13 | 12 | 11 | 10 | 14 | 7  | 8  | 9  | 15 | 6  | 3  | 2  | 16 | 5  | 4  | 1  |
| 7   | 6  | 5  | 16 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8   | 1  | 4  | 15 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 9   | 2  | 3  | 14 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10  | 11 | 12 | 13 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7   | 8  | 9  | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 6   | 1  | 2  | 11 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5   | 4  | 3  | 12 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16  | 15 | 14 | 13 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1   | 2  | 9  | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4   | 3  | 8  | 11 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5   | 6  | 7  | 12 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16  | 15 | 14 | 13 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 13  | 12 | 11 | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14  | 7  | 8  | 9  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 15  | 6  | 3  | 2  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16  | 5  | 4  | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <b>21</b><br><table><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>12</td><td>13</td><td>14</td><td>5</td></tr><tr><td>11</td><td>16</td><td>15</td><td>6</td></tr><tr><td>10</td><td>9</td><td>8</td><td>7</td></tr></table> | 1  | 2  | 3  | 4  | 12 | 13 | 14 | 5  | 11 | 16 | 15 | 6  | 10 | 9  | 8  | 7  | <b>22</b><br><table><tr><td>1</td><td>12</td><td>11</td><td>10</td></tr><tr><td>2</td><td>13</td><td>16</td><td>9</td></tr><tr><td>3</td><td>14</td><td>15</td><td>8</td></tr><tr><td>4</td><td>5</td><td>6</td><td>7</td></tr></table> | 1  | 12 | 11 | 10 | 2  | 13 | 16 | 9  | 3  | 14 | 15 | 8  | 4  | 5  | 6  | 7  | <b>23</b><br><table><tr><td>4</td><td>3</td><td>2</td><td>1</td></tr><tr><td>5</td><td>14</td><td>13</td><td>12</td></tr><tr><td>6</td><td>15</td><td>16</td><td>11</td></tr><tr><td>7</td><td>8</td><td>9</td><td>10</td></tr></table> | 4  | 3  | 2  | 1  | 5  | 14 | 13 | 12 | 6  | 15 | 16 | 11 | 7  | 8  | 9  | 10 | <b>24</b><br><table><tr><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>3</td><td>14</td><td>15</td><td>8</td></tr><tr><td>2</td><td>13</td><td>16</td><td>9</td></tr><tr><td>1</td><td>12</td><td>11</td><td>10</td></tr></table> | 4  | 5  | 6  | 7  | 3  | 14 | 15 | 8  | 2  | 13 | 16 | 9  | 1  | 12 | 11 | 10 |
| 1   | 2  | 3  | 4  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 12  | 13 | 14 | 5  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11  | 16 | 15 | 6  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10  | 9  | 8  | 7  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1   | 12 | 11 | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2   | 13 | 16 | 9  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3   | 14 | 15 | 8  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4   | 5  | 6  | 7  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4   | 3  | 2  | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5   | 14 | 13 | 12 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 6   | 15 | 16 | 11 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7   | 8  | 9  | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4   | 5  | 6  | 7  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3   | 14 | 15 | 8  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2   | 13 | 16 | 9  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1   | 12 | 11 | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <b>25</b><br><table><tr><td>7</td><td>6</td><td>5</td><td>4</td></tr><tr><td>8</td><td>15</td><td>14</td><td>3</td></tr><tr><td>9</td><td>16</td><td>13</td><td>2</td></tr><tr><td>10</td><td>11</td><td>12</td><td>1</td></tr></table> | 7  | 6  | 5  | 4  | 8  | 15 | 14 | 3  | 9  | 16 | 13 | 2  | 10 | 11 | 12 | 1  | <b>26</b><br><table><tr><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>6</td><td>15</td><td>16</td><td>11</td></tr><tr><td>5</td><td>14</td><td>13</td><td>12</td></tr><tr><td>4</td><td>3</td><td>2</td><td>1</td></tr></table> | 7  | 8  | 9  | 10 | 6  | 15 | 16 | 11 | 5  | 14 | 13 | 12 | 4  | 3  | 2  | 1  | <b>27</b><br><table><tr><td>10</td><td>11</td><td>12</td><td>1</td></tr><tr><td>9</td><td>16</td><td>13</td><td>2</td></tr><tr><td>8</td><td>15</td><td>14</td><td>3</td></tr><tr><td>7</td><td>6</td><td>5</td><td>4</td></tr></table> | 10 | 11 | 12 | 1  | 9  | 16 | 13 | 2  | 8  | 15 | 14 | 3  | 7  | 6  | 5  | 4  | <b>28</b><br><table><tr><td>10</td><td>9</td><td>8</td><td>7</td></tr><tr><td>11</td><td>16</td><td>15</td><td>6</td></tr><tr><td>12</td><td>13</td><td>14</td><td>5</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr></table> | 10 | 9  | 8  | 7  | 11 | 16 | 15 | 6  | 12 | 13 | 14 | 5  | 1  | 2  | 3  | 4  |
| 7   | 6  | 5  | 4  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8   | 15 | 14 | 3  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 9   | 16 | 13 | 2  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10  | 11 | 12 | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7   | 8  | 9  | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 6   | 15 | 16 | 11 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5   | 14 | 13 | 12 |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4   | 3  | 2  | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10  | 11 | 12 | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 9   | 16 | 13 | 2  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8   | 15 | 14 | 3  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7   | 6  | 5  | 4  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10  | 9  | 8  | 7  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11  | 16 | 15 | 6  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 12  | 13 | 14 | 5  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1   | 2  | 3  | 4  |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

## Примеры.

```
/* Одномерная интерпретация матрицы.
При нумерации от 0 номер (i, j)-ого элемента в линеаризованном массиве очень
просто выражается через i и j:
    k = i * n + j,
Обратная операция тоже очень проста:
    i = k / n,
    j = k % n. */
```

```
#include <stdio.h>

const int maxn = 100;

int main()
{
    int i, j, n, k;
    int m[maxn * maxn];

    scanf("%i", &n);
    for (k = 0; k != n * n; ++k)
        scanf("%d", m + k); /* вводится k-ое значение, считая от начала
                               массива, т.е. массив в Си отождествляется
                               с адресом его начала */
    for (k = 0; k != n * n; ++k) {
        printf("%d ", m[k]); /* выводится k-ый элемент массива */
        if (k % n == n - 1) putchar('\n'); /* переход на новую строку
                                              листинга по окончании вывода
                                              элементов строки матрицы */
    }
}
```

Загадка: какому из предложенных вариантов соответствует эта программа?

```
#include <stdio.h>

enum { maxn = 100 };

int main()
{
    int m[maxn][maxn];

    int dir[4] = { 1, 0, -1, 0 };

    int n;
    scanf("%d", &n);
    for (int i = 0; i != n; ++i)
        for (int j = 0; j != n; ++j)
            scanf("%d", &m[i][j]);

    int l = n;
    int p = 0;
    int i = 0, j = -1;
    while (l != 0) {
        for (int k = 0; k != l; ++k) {
            j += dir[p % 4];
            i += dir[(p+3) % 4];
            printf("%d ", m[i][j]);
        }
        ++p;
        l -= p % 2;
    }
    putchar('\n');
}
```