

| №   | Задача   | Решение  |          |                        |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|--|--|----------|------------------------|----------|------------------------|-------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1   | Число: 12345678 <sub>16</sub> перевести в шестнадцатеричную  | 12345678/16=771604 (остаток 14=E)<br>771604/16=48225 (остаток 4)<br>48225/16=3014 (остаток 1)<br>3014/16=188 (остаток 6)<br>188/16=11 (остаток 12=C)<br>11=B<br><br><b>Результат: 12345678<sub>16</sub> = BC614E<sub>16</sub></b>  |          |                        |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   | Число:1000000 <sub>16</sub> перевести в шестнадцатеричную  | 1000000/16=62500 (остаток 0)<br>62500/16=3906 (остаток 4)<br>3906/16=244 (остаток 2)<br>244/16=15 (остаток 4)<br>15=F<br><br><b>Результат: 1000000<sub>16</sub> = F4240<sub>16</sub></b>   |          |                        |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2   | Число:1000000 <sub>16</sub> перевести в десятичную   | 1000000 <sub>16</sub> = 1·16 <sup>6</sup> +0·16 <sup>5</sup> +0·16 <sup>4</sup> +0·16 <sup>3</sup> +0·16 <sup>2</sup> +0·16 <sup>1</sup> +0·16 <sup>0</sup> = 16777216+0+0+0+0+0+0 = 16777216 <sub>10</sub><br><br><b>Результат: 1000000<sub>16</sub> = 16777216<sub>10</sub></b>  |          |                        |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   | Число:12345678 <sub>16</sub> перевести в десятичную  | 12345678 <sub>16</sub> = 1·16 <sup>7</sup> +2·16 <sup>6</sup> +3·16 <sup>5</sup> +4·16 <sup>4</sup> +5·16 <sup>3</sup> +6·16 <sup>2</sup> +7·16 <sup>1</sup> +8·16 <sup>0</sup> = 268435456+33554432+3145728+262144+20480+1536+112+8 = 305419896 <sub>10</sub><br><br><b>Результат: 12345678<sub>16</sub> = 305419896<sub>10</sub></b> |          |                        |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3   | Записать в виде логического выражение ответ Винни Пуха: “Сгущенного молока и меда и можно без хлеба”   | <b>Результат:</b><br><b>1. A &amp; B &amp; !C – вариант: без хлеба</b><br>где:<br>A – сгущенное молоко;<br>B – мед;<br>«можно» – состояние неопределенное (может быть, как Ложь, так и Истина).<br>!C – без хлеба;<br>C – с хлебом;<br><b>2. A &amp; B &amp; C – вариант: с хлебом</b>   |          |                        |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4   | Доказать тождества A → B =!A  B  | <table><tr><th>A</th><th>B</th><th>!A</th><th>!A  B</th><th>A → B</th></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td></tr><tr><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>0</td><td>1</td><td>1</td></tr></table>        | A        | B                      | !A       | !A  B                  | A → B | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |   |   |   |   |
|   | A  | B  | !A       | !A  B                  | A → B    |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0   | 0  | 1  | 1        | 1                      |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0   | 1  | 1  | 1        | 1                      |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1   | 0  | 0  | 0        | 0                      |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1   | 1  | 0  | 1        | 1                      |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Доказать тождества A ↔ B = (A && B)    (!A && !B) | <table><tr><th>A</th><th>B</th><th>A &amp; B</th><th>!A &amp;&amp; !B</th><th>(A &amp;&amp; B)    (!A &amp;&amp; !B)</th><th>A ↔ B</th></tr><tr><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td></tr><tr><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>1</td><td>0</td><td>1</td><td>1</td></tr></table> | A  | B        | A & B                  | !A && !B | (A && B)    (!A && !B) | A ↔ B | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 |
| A   | B  | A & B  | !A && !B | (A && B)    (!A && !B) | A ↔ B    |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0   | 0  | 0  | 1        | 1                      | 1        |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0   | 1  | 0  | 0        | 0                      | 0        |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1   | 0  | 0  | 0        | 0                      | 0        |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1   | 1  | 1  | 0        | 1                      | 1        |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5   | Найти эквивалент для ⊕?  | A⊕B==(A&&B)   (A&&!B)<br><br><table><tr><th>A</th><th>B</th><th>A⊕B</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table><br>Сверим  | A        | B                      | A⊕B      | 0                      | 0     | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| A   | B  | A⊕B  |          |                        |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0   | 0  | 0  |          |                        |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0   | 1  | 1  |          |                        |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1   | 0  | 1  |          |                        |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1   | 1  | 0  |          |                        |          |                        |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

|   |  | <table><tr><th>A</th><th>B</th><th>!A</th><th>!B</th><th>!A&amp;&amp;B</th><th>A&amp;&amp;!B</th><th>(!A&amp;&amp;B)  (!A&amp;&amp;!B)</th></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td><b>0</b></td></tr><tr><td>0</td><td>1</td><td>1</td><td>0</td><td>1</td><td>0</td><td><b>1</b></td></tr><tr><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td><b>1</b></td></tr><tr><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td><b>0</b></td></tr></table> | A  | B     | !A    | !B                | !A&&B | A&&!B | (!A&&B)  (!A&&!B) | 0 | 0 | 1 | 1 | 0 | 0 | <b>0</b> | 0 | 1 | 1 | 0 | 1 | 0 | <b>1</b> | 1 | 0 | 0 | 1 | 0 | 1 | <b>1</b> | 1 | 1 | 0 | 0 | 0 | 0 | <b>0</b> |
|---|--|--|----|-------|-------|-------------------|-------|-------|-------------------|---|---|---|---|---|---|----------|---|---|---|---|---|---|----------|---|---|---|---|---|---|----------|---|---|---|---|---|---|----------|
| A | B  | !A   | !B | !A&&B | A&&!B | (!A&&B)  (!A&&!B) |       |       |                   |   |   |   |   |   |   |          |   |   |   |   |   |   |          |   |   |   |   |   |   |          |   |   |   |   |   |   |          |
| 0 | 0  | 1  | 1  | 0     | 0     | <b>0</b>          |       |       |                   |   |   |   |   |   |   |          |   |   |   |   |   |   |          |   |   |   |   |   |   |          |   |   |   |   |   |   |          |
| 0 | 1  | 1  | 0  | 1     | 0     | <b>1</b>          |       |       |                   |   |   |   |   |   |   |          |   |   |   |   |   |   |          |   |   |   |   |   |   |          |   |   |   |   |   |   |          |
| 1 | 0  | 0  | 1  | 0     | 1     | <b>1</b>          |       |       |                   |   |   |   |   |   |   |          |   |   |   |   |   |   |          |   |   |   |   |   |   |          |   |   |   |   |   |   |          |
| 1 | 1  | 0  | 0  | 0     | 0     | <b>0</b>          |       |       |                   |   |   |   |   |   |   |          |   |   |   |   |   |   |          |   |   |   |   |   |   |          |   |   |   |   |   |   |          |
| 6 | Упростить выражение: $X = (B \rightarrow A) * (A + B) * (A \rightarrow C)$ | $X = (!B + A) * (!A + !B) * (!A + C)$ $X = (!B \& A) \& !A \& !B \& (!A \& C)$ $X = (!B \& !A \& !A + !B \& A \& !B) * (!A + C)$ $X = (!B \& !A + 0) * (!A + C)$ $X = (!B \& !A) * (!A + C)$ $X = !B \& !A \& !A + !B \& !A \& C$ $X = !B \& !A + !B \& !A \& C$ $X = !B \& !A (1 + C)$ <b>Результат: <math>X = !B \&amp; !A</math></b>  |    |       |       |                   |       |       |                   |   |   |   |   |   |   |          |   |   |   |   |   |   |          |   |   |   |   |   |   |          |   |   |   |   |   |   |          |