### 1.1. Представление целых чисел. Арифметические действия над двоичными целыми числами со знаком

1. Представить целые числа в виде двоичного 8-разрядного числа в дополнительном коде и **сложить** их. Пояснить выполненные действия. Выполнить проверку в десятичном виде.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Вариант** | **Числа  (дес.)** | **Двоичное** | **8-разрядное** | **число** |
| **пр. код** | **обр. код** | **доп. код** |
| **1** | 33 | 0010 0001 | 0010 0001 | 0010 0001 |
|  | -110 | 1110 1110 | 1001 0001 | 1001 0010 |
| **∑ =** | **-77** | **1100 1101** |  | **1011 0011** |
| **2** | 110 | 0110 1110 | 0110 1110 | 0110 1110 |
|  | -33 | 1010 0001 | 1101 1110 | 1101 1111 |
| **∑ =** | **77** | **0100 1101** |  | **0100 1101** |
| **3** | 34 | 0010 0010 | 0010 0010 | 0010 0010 |
|  | -109 | 1110 1101 | 1001 0010 | 1001 0011 |
| **∑ =** | **-75** | **1100 1011** |  | **1011 0101** |
| **4** | 109 | 0110 1101 | 0110 1101 | 0110 1101 |
|  | -34 | 1010 0010 | 1101 1101 | 1101 1110 |
| **∑ =** | **75** | **0100 1011** |  | **0100 1011** |
| **5** | 35 | 0010 0011 | 0010 0011 | 0010 0011 |
|  | -108 | 1110 1100 | 1001 0011 | 1001 0100 |
| **∑ =** | **-73** | **1100 1001** |  | **1011 0111** |
| **6** | 108 | 0110 1100 | 0110 1100 | 0110 1100 |
|  | -35 | 1010 0011 | 1101 1100 | 1101 1101 |
| **∑ =** | **73** | **0100 1001** |  | **0100 1001** |
| **7** | 36 | 0010 0100 | 0010 0100 | 0010 0100 |
|  | -107 | 1110 1011 | 1001 0100 | 1001 0101 |
| **∑ =** | **-71** | **1100 0111** |  | **1011 1001** |
| **8** | 107 | 0110 1011 | 0110 1011 | 0110 1011 |
|  | -36 | 1010 0100 | 1101 1011 | 1101 1100 |
| **∑ =** | **71** | **0100 0111** |  | **0100 0111** |
| **9** | 37 | 0010 0101 | 0010 0101 | 0010 0101 |
|  | -106 | 1110 1010 | 1001 0101 | 1001 0110 |
| **∑ =** | **-69** | **1100 0101** |  | **1011 1011** |
| **10** | 106 | 0110 1010 | 0110 1010 | 0110 1010 |
|  | -37 | 1010 0101 | 1101 1010 | 1101 1011 |
| **∑ =** | **69** | **0100 0101** |  | **0100 0101** |
| **11** | 38 | 0010 0110 | 0010 0110 | 0010 0110 |
|  | -105 | 1110 1001 | 1001 0110 | 1001 0111 |
| **∑ =** | **-67** | **1100 0011** |  | **1011 1101** |
| **12** | 105 | 0110 1001 | 0110 1001 | 0110 1001 |
|  | -38 | 1010 0110 | 1101 1001 | 1101 1010 |
| **∑ =** | **67** | **0100 0011** |  | **0100 0011** |
| **13** | 39 | 0010 0111 | 0010 0111 | 0010 0111 |
|  | -103 | 1110 0111 | 1001 1000 | 1001 1001 |
| **∑ =** | **-64** | **1100 0000** |  | **1100 0000** |
| **14** | 103 | 0110 0111 | 0110 0111 | 0110 0111 |
|  | -39 | 1010 0111 | 1101 1000 | 1101 1001 |
| **∑ =** | **64** | **0100 0000** |  | **0100 0000** |
| **15** | 41 | 0010 1001 | 0010 1001 | 0010 1001 |
|  | -102 | 1110 0110 | 1001 1001 | 1001 1010 |
| **∑ =** | **-61** | **1011 1101** |  | **1100 0011** |
| **16** | 102 | 0110 0110 | 0110 0110 | 0110 0110 |
|  | -41 | 1010 1001 | 1101 0110 | 1101 0111 |
| **∑ =** | **61** | **0011 1101** |  | **0011 1101** |
| **17** | 42 | 0010 1010 | 0010 1010 | 0010 1010 |
|  | -101 | 1110 0101 | 1001 1010 | 1001 1011 |
| **∑ =** | **-59** | **1011 1011** |  | **1100 0101** |
| **18** | 101 | 0110 0101 | 0110 0101 | 0110 0101 |
|  | -42 | 1010 1010 | 1101 0101 | 1101 0110 |
| **∑ =** | **59** | **0011 1011** |  | **0011 1011** |
| **19** | 43 | 0010 1011 | 0010 1011 | 0010 1011 |
|  | -100 | 1110 0100 | 1001 1011 | 1001 1100 |
| **∑ =** | **-57** | **1011 1001** |  | **1011 1001** |
| **20** | 100 | 0110 0100 | 0110 0100 | 0110 0100 |
|  | -43 | 1010 1011 | 1101 0100 | 1101 0101 |
| **∑ =** | **57** | **0011 1001** |  | **0011 1001** |
| **21** | 44 | 0010 1100 | 0010 1100 | 0010 1100 |
|  | -99 | 1110 0011 | 1001 1100 | 1001 1101 |
| **∑ =** | **-55** | **1011 0111** |  | **1100 1001** |
| **22** | 99 | 0110 0011 | 0110 0011 | 0110 0011 |
|  | -44 | 1010 1100 | 1101 0011 | 1101 0100 |
| **∑ =** | **55** | **0011 0111** |  | **0011 0111** |
| **23** | 45 | 0010 1101 | 0010 1101 | 0010 1101 |
|  | -98 | 1110 0010 | 1001 1101 | 1001 1110 |
| **∑ =** | **-53** | **1011 0101** |  | **1100 1011** |
| **24** | 98 | 0110 0010 | 0110 0010 | 0110 0010 |
|  | -45 | 1010 1101 | 1101 0010 | 1101 0011 |
| **∑ =** | **53** | **0011 0101** |  | **0011 0101** |
| **25** | 46 | 0010 1110 | 0010 1110 | 0010 1110 |
|  | -97 | 1110 0001 | 1001 1110 | 1001 1111 |
| **∑ =** | **-51** | **1011 0011** |  | **1100 1101** |
| **26** | 97 | 0110 0001 | 0110 0001 | 0110 0001 |
|  | -46 | 1010 1110 | 1101 0001 | 1101 0010 |
| **∑ =** | **51** | **0011 0011** |  | **0011 0011** |
| **27** | 47 | 0010 1111 | 0010 1111 | 0010 1111 |
|  | -111 | 1110 1111 | 1001 0000 | 1001 0001 |
| **∑ =** | **-64** | **1100 0000** |  | **1100 0000** |
| **28** | 111 | 0110 1111 | 0110 1111 | 0110 1111 |
|  | -47 | 1010 1111 | 1101 0000 | 1101 0001 |
| **∑ =** | **64** | **0100 0000** |  | **0100 0000** |
| **29** | 50 | 0011 0010 | 0011 0010 | 0011 0010 |
|  | -113 | 1111 0001 | 1000 1110 | 1000 1111 |
| **∑ =** | **-63** | **1011 1111** |  | **1100 0001** |
| **30** | 113 | 0111 0001 | 0111 0001 | 0111 0001 |
|  | -50 | 1011 0010 | 1100 1101 | 1100 1110 |
| **∑ =** | **63** | **0011 1111** |  | **0011 1111** |
| **31** | 51 | 0011 0011 | 0011 0011 | 0011 0011 |
|  | -114 | 1111 0010 | 1000 1101 | 1000 1110 |
| **∑ =** | **-63** | **1011 1111** |  | **1100 0001** |
| **32** | 114 | 0111 0010 | 0111 0010 | 0111 0010 |
|  | -51 | 1011 0011 | 1100 1100 | 1100 1101 |
| **∑ =** | **63** | **0011 1111** |  | **0011 1111** |

2. Представить целые десятичные числа в виде двоичных. **Умножить** двоичные целые числа: Пояснить выполненные действия. Выполнить проверку в десятичном виде.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **№ вар.** | **Числа (дес.)** | **Вес разряда числа** | | | | | | | | | | | | |
| 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| **№ разряда** | | **12** | **11** | **10** | **9** | **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| **1** | 92 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |
|  | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| **\*** | **6164** | **1** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **0** | **0** |
| **2** | 93 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 |
|  | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| **\*** | **6138** | **1** | **0** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **0** | **1** | **0** |
| **3** | 94 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 |
|  | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| **\*** | **6110** | **1** | **0** | **1** | **1** | **1** | **1** | **1** | **0** | **1** | **1** | **1** | **1** | **0** |
| **4** | 95 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
|  | 63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| **\*** | **5985** | **1** | **0** | **1** | **1** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **1** |
| **5** | 97 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
|  | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| **\*** | **6014** | **1** | **0** | **1** | **1** | **1** | **0** | **1** | **1** | **1** | **1** | **1** | **1** | **0** |
| **6** | 98 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
|  | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |
| **\*** | **5978** | **1** | **0** | **1** | **1** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **1** | **0** |
| **7** | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
|  | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| **\*** | **5940** | **1** | **0** | **1** | **1** | **1** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **0** |
| **8** | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
|  | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 |
| **\*** | **5900** | **1** | **0** | **1** | **1** | **1** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** |
| **9** | 101 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
|  | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 |
| **\*** | **5858** | **1** | **0** | **1** | **1** | **0** | **1** | **1** | **1** | **0** | **0** | **0** | **1** | **0** |
| **10** | 102 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
|  | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 |
| **\*** | **5814** | **1** | **0** | **1** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **1** | **1** | **0** |
| **11** | 103 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |
|  | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| **\*** | **5665** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **1** |
| **12** | 105 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
|  | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| **\*** | **5670** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **1** | **0** | **0** | **1** | **1** | **0** |
| **13** | 106 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
|  | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |
| **\*** | **5618** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **1** | **0** | **0** | **1** | **0** |
| **14** | 107 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
|  | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| **\*** | **5564** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **1** | **1** | **1** | **1** | **0** | **0** |
| **15** | 108 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
|  | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| **\*** | **5508** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **1** | **0** | **0** |
| **16** | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
|  | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |
| **\*** | **5450** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **1** | **0** | **1** | **0** |
| **17** | 110 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
|  | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| **\*** | **5390** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** |
| **18** | 111 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
|  | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| **\*** | **5217** | **1** | **0** | **1** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **1** |
| **19** | 113 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
|  | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 |
| **\*** | **5198** | **1** | **0** | **1** | **0** | **0** | **0** | **1** | **0** | **0** | **1** | **1** | **1** | **0** |
| **20** | 114 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 |
|  | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| **\*** | **5130** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **0** |
| **21** | 115 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
|  | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| **\*** | **5060** | **1** | **0** | **0** | **1** | **1** | **1** | **1** | **0** | **0** | **0** | **1** | **0** | **0** |
| **22** | 116 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 |
|  | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| **\*** | **4988** | **1** | **0** | **0** | **1** | **1** | **0** | **1** | **1** | **1** | **1** | **1** | **0** | **0** |
| **23** | 117 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 |
|  | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| **\*** | **4914** | **1** | **0** | **0** | **1** | **1** | **0** | **0** | **1** | **1** | **0** | **0** | **1** | **0** |
| **24** | 118 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 |
|  | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| **\*** | **4838** | **1** | **0** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **0** | **1** | **1** | **0** |
| **25** | 119 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
|  | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| **\*** | **4641** | **1** | **0** | **0** | **1** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **1** |
| **26** | 121 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
|  | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| **\*** | **4598** | **1** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **1** | **0** | **1** | **1** | **0** |
| **27** | 122 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
|  | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| **\*** | **4514** | **1** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **0** | **0** | **1** | **0** |
| **28** | 123 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
|  | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| **\*** | **4428** | **1** | **0** | **0** | **0** | **1** | **0** | **1** | **0** | **0** | **1** | **1** | **0** | **0** |
| **29** | 124 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
|  | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| **\*** | **4340** | **1** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **0** | **1** | **0** | **0** |
| **30** | 125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
|  | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| **\*** | **4250** | **1** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **1** | **1** | **0** | **1** | **0** |
| **31** | 126 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
|  | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| **\*** | **4158** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **1** | **0** |
| **32** | 127 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|  | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| **\*** | **3937** | **0** | **1** | **1** | **1** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **1** |

3. Представить целые десятичные числа в виде двоичных. **Разделить** двоичные целые числа: Пояснить выполненные действия. Выполнить проверку в десятичном виде.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **№ вар.** | **Числа (дес.)** | **Вес разряда числа** | | | | | | | | | | | | |
| 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| **№ разряда** | | **12** | **11** | **10** | **9** | **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| **1** | 5390 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
|  | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| **/** | **110** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **1** | **1** | **0** |
| **2** | 5217 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
|  | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| **/** | **111** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **1** | **1** | **1** |
| **3** | 5198 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |
|  | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 |
| **/** | **113** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** | **0** | **0** | **1** |
| **4** | 5130 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
|  | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| **/** | **114** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** | **0** | **1** | **0** |
| **5** | 5060 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
|  | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| **/** | **115** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** | **0** | **1** | **1** |
| **6** | 4988 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
|  | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| **/** | **116** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** | **1** | **0** | **0** |
| **7** | 4914 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |
|  | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| **/** | **117** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** | **1** | **0** | **1** |
| **8** | 4838 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
|  | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| **/** | **118** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** | **1** | **1** | **0** |
| **9** | 4641 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
|  | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| **/** | **119** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** | **1** | **1** | **1** |
| **10** | 4598 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 |
|  | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| **/** | **121** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **0** | **0** | **1** |
| **11** | 4514 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
|  | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| **/** | **122** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **0** | **1** | **0** |
| **12** | 4428 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
|  | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| **/** | **123** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **0** | **1** | **1** |
| **13** | 4340 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 |
|  | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| **/** | **124** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **1** | **0** | **0** |
| **14** | 4250 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |
|  | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| **/** | **125** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **1** | **0** | **1** |
| **15** | 4158 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
|  | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| **/** | **126** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **1** | **1** | **0** |
| **16** | 3937 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
|  | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| **/** | **127** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **1** | **1** | **1** |
| **17** | 6164 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
|  | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| **/** | **92** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **0** |
| **18** | 6138 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
|  | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| **/** | **93** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **1** |
| **19** | 6110 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 |
|  | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| **/** | **94** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **0** |
| **20** | 5985 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
|  | 63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| **/** | **95** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **1** |
| **21** | 6014 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
|  | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| **/** | **97** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **1** |
| **22** | 5978 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |
|  | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |
| **/** | **98** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **0** | **1** | **0** |
| **23** | 5940 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
|  | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| **/** | **99** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **0** | **1** | **1** |
| **24** | 5900 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
|  | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 |
| **/** | **100** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **0** |
| **15** | 5858 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
|  | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 |
| **/** | **101** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **1** |
| **26** | 5814 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
|  | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 |
| **/** | **102** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **1** | **1** | **0** |
| **27** | 5665 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
|  | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| **/** | **103** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **1** | **1** | **1** |
| **28** | 5670 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
|  | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| **/** | **105** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **0** | **1** |
| **29** | 5618 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 |
|  | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |
| **/** | **106** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **1** | **0** |
| **30** | 5564 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
|  | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| **/** | **107** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **1** | **1** |
| **31** | 5508 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
|  | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| **/** | **108** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **1** | **0** | **0** |
| **32** | 5450 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
|  | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |
| **/** | **109** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **1** | **0** | **1** |

### 1.2. Представление вещественных чисел. Арифметические действия над двоичными нормализованными числами с плавающей запятой

4-5,7. Получить представления вещественных чисел с плавающей запятой в памяти ЭВМ, а затем сложить, вычесть и разделить их. Результаты представить в нормализованном виде. Пояснить выполненные действия. Выполнить проверку в десятичном виде.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **№ вар.** | **Числа (дес.)** | **Вес разряда числа** | | | | | | | | | | | | | | |
| 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 | **,** | 1/2 | 1/4 | 1/8 | 1/16 |
| **№ разряда** | | **9** | **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |  | **-1** | **-2** | **-3** | **-4** |
| **1** | 597,1875 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | **,** | 0 | 0 | 1 | 1 |
|  | 8,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **,** | 0 | 0 | 1 | 0 |
| **+** | **605,3125** | **1** | **0** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **589,0625** | **1** | **0** | **0** | **1** | **0** | **0** | **1** | **1** | **0** | **1** | **,** | **0** | **0** | **0** | **1** |
| **/** | **73,5** | **0** | **0** | **0** | **1** | **0** | **0** | **1** | **0** | **0** | **1** | **,** | **1** | **0** | **0** | **0** |
| **2** | 607,1875 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | **,** | 0 | 0 | 1 | 1 |
|  | 8,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **,** | 0 | 1 | 1 | 0 |
| **+** | **615,5625** | **1** | **0** | **0** | **1** | **1** | **0** | **0** | **1** | **1** | **1** | **,** | **1** | **0** | **0** | **1** |
| **–** | **598,8125** | **1** | **0** | **0** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **72,5** | **0** | **0** | **0** | **1** | **0** | **0** | **1** | **0** | **0** | **0** | **,** | **1** | **0** | **0** | **0** |
| **3** | 616,6875 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | **,** | 1 | 0 | 1 | 1 |
|  | 8,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **,** | 1 | 0 | 1 | 0 |
| **+** | **625,3125** | **1** | **0** | **0** | **1** | **1** | **1** | **0** | **0** | **0** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **608,0625** | **1** | **0** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **0** | **,** | **0** | **0** | **0** | **1** |
| **/** | **71,5** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **1** | **1** | **1** | **,** | **1** | **0** | **0** | **0** |
| **4** | 625,6875 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | **,** | 1 | 0 | 1 | 1 |
|  | 8,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **,** | 1 | 1 | 1 | 0 |
| **+** | **634,5625** | **1** | **0** | **0** | **1** | **1** | **1** | **1** | **0** | **1** | **0** | **,** | **1** | **0** | **0** | **1** |
| **–** | **616,8125** | **1** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **0** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **70,5** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **1** | **1** | **0** | **,** | **1** | **0** | **0** | **0** |
| **5** | 634,1875 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | **,** | 0 | 0 | 1 | 1 |
|  | 9,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | **,** | 0 | 0 | 1 | 0 |
| **+** | **643,3125** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **625,0625** | **1** | **0** | **0** | **1** | **1** | **1** | **0** | **0** | **0** | **1** | **,** | **0** | **0** | **0** | **1** |
| **/** | **69,5** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **1** | **0** | **1** | **,** | **1** | **0** | **0** | **0** |
| **6** | 642,1875 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | **,** | 0 | 0 | 1 | 1 |
|  | 9,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | **,** | 0 | 1 | 1 | 0 |
| **+** | **651,5625** | **1** | **0** | **1** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **,** | **1** | **0** | **0** | **1** |
| **–** | **632,8125** | **1** | **0** | **0** | **1** | **1** | **1** | **1** | **0** | **0** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **68,5** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **1** | **0** | **0** | **,** | **1** | **0** | **0** | **0** |
| **7** | 649,6875 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | **,** | 1 | 0 | 1 | 1 |
|  | 9,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | **,** | 1 | 0 | 1 | 0 |
| **+** | **659,3125** | **1** | **0** | **1** | **0** | **0** | **1** | **0** | **0** | **1** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **640,0625** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **,** | **0** | **0** | **0** | **1** |
| **/** | **67,5** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **1** | **,** | **1** | **0** | **0** | **0** |
| **8** | 656,6875 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | **,** | 1 | 0 | 1 | 1 |
|  | 9,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | **,** | 1 | 1 | 1 | 0 |
| **+** | **666,5625** | **1** | **0** | **1** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **,** | **1** | **0** | **0** | **1** |
| **–** | **646,8125** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **66,5** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **0** | **,** | **1** | **0** | **0** | **0** |
| **9** | 663,1875 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | **,** | 0 | 0 | 1 | 1 |
|  | 10,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | **,** | 0 | 0 | 1 | 0 |
| **+** | **673,3125** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **653,0625** | **1** | **0** | **1** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **,** | **0** | **0** | **0** | **1** |
| **/** | **65,5** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **1** | **,** | **1** | **0** | **0** | **0** |
| **10** | 669,1875 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | **,** | 0 | 0 | 1 | 1 |
|  | 10,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | **,** | 0 | 1 | 1 | 0 |
| **+** | **679,5625** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **1** | **1** | **1** | **,** | **1** | **0** | **0** | **1** |
| **–** | **658,8125** | **1** | **0** | **1** | **0** | **0** | **1** | **0** | **0** | **1** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **64,5** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **,** | **1** | **0** | **0** | **0** |
| **11** | 674,6875 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | **,** | 1 | 0 | 1 | 1 |
|  | 10,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | **,** | 1 | 0 | 1 | 0 |
| **+** | **685,3125** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **664,0625** | **1** | **0** | **1** | **0** | **0** | **1** | **1** | **0** | **0** | **0** | **,** | **0** | **0** | **0** | **1** |
| **/** | **63,5** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **1** | **1** | **,** | **1** | **0** | **0** | **0** |
| **12** | 679,6875 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | **,** | 1 | 0 | 1 | 1 |
|  | 10,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | **,** | 1 | 1 | 1 | 0 |
| **+** | **690,5625** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **,** | **1** | **0** | **0** | **1** |
| **–** | **668,8125** | **1** | **0** | **1** | **0** | **0** | **1** | **1** | **1** | **0** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **62,5** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **1** | **0** | **,** | **1** | **0** | **0** | **0** |
| **13** | 684,1875 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | **,** | 0 | 0 | 1 | 1 |
|  | 11,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | **,** | 0 | 0 | 1 | 0 |
| **+** | **695,3125** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **1** | **1** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **673,0625** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **,** | **0** | **0** | **0** | **1** |
| **/** | **61,5** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **0** | **1** | **,** | **1** | **0** | **0** | **0** |
| **14** | 688,1875 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | **,** | 0 | 0 | 1 | 1 |
|  | 11,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | **,** | 0 | 1 | 1 | 0 |
| **+** | **699,5625** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **1** | **1** | **,** | **1** | **0** | **0** | **1** |
| **–** | **676,8125** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **1** | **0** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **60,5** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **0** | **0** | **,** | **1** | **0** | **0** | **0** |
| **15** | 691,6875 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | **,** | 1 | 0 | 1 | 1 |
|  | 11,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | **,** | 1 | 0 | 1 | 0 |
| **+** | **703,3125** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **1** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **680,0625** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **0** | **,** | **0** | **0** | **0** | **1** |
| **/** | **59,5** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** | **1** | **1** | **,** | **1** | **0** | **0** | **0** |
| **16** | 694,6875 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | **,** | 1 | 0 | 1 | 1 |
|  | 11,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | **,** | 1 | 1 | 1 | 0 |
| **+** | **706,5625** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **1** | **0** | **,** | **1** | **0** | **0** | **1** |
| **–** | **682,8125** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **58,5** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** | **1** | **0** | **,** | **1** | **0** | **0** | **0** |
| **17** | 697,1875 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | **,** | 0 | 0 | 1 | 1 |
|  | 12,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | **,** | 0 | 0 | 1 | 0 |
| **+** | **709,3125** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **1** | **0** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **685,0625** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **1** | **,** | **0** | **0** | **0** | **1** |
| **/** | **57,5** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** | **0** | **1** | **,** | **1** | **0** | **0** | **0** |
| **18** | 699,1875 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | **,** | 0 | 0 | 1 | 1 |
|  | 12,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | **,** | 0 | 1 | 1 | 0 |
| **+** | **711,5625** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **1** | **1** | **1** | **,** | **1** | **0** | **0** | **1** |
| **–** | **686,8125** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **56,5** | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** | **0** | **0** | **,** | **1** | **0** | **0** | **0** |
| **19** | 700,6875 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | **,** | 1 | 0 | 1 | 1 |
|  | 12,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | **,** | 1 | 0 | 1 | 0 |
| **+** | **713,3125** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **0** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **688,0625** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **,** | **0** | **0** | **0** | **1** |
| **/** | **55,5** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **1** | **1** | **,** | **1** | **0** | **0** | **0** |
| **20** | 701,6875 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | **,** | 1 | 0 | 1 | 1 |
|  | 12,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | **,** | 1 | 1 | 1 | 0 |
| **+** | **714,5625** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **1** | **0** | **,** | **1** | **0** | **0** | **1** |
| **–** | **688,8125** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **54,5** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **1** | **0** | **,** | **1** | **0** | **0** | **0** |
| **21** | 702,1875 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | **,** | 0 | 0 | 1 | 1 |
|  | 13,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | **,** | 0 | 0 | 1 | 0 |
| **+** | **715,3125** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **1** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **689,0625** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **1** | **,** | **0** | **0** | **0** | **1** |
| **/** | **53,5** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **1** | **,** | **1** | **0** | **0** | **0** |
| **22** | 702,1875 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | **,** | 0 | 0 | 1 | 1 |
|  | 13,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | **,** | 0 | 1 | 1 | 0 |
| **+** | **715,5625** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **1** | **1** | **,** | **1** | **0** | **0** | **1** |
| **–** | **688,8125** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **52,5** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **0** | **,** | **1** | **0** | **0** | **0** |
| **23** | 701,6875 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | **,** | 1 | 0 | 1 | 1 |
|  | 13,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | **,** | 1 | 0 | 1 | 0 |
| **+** | **715,3125** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **1** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **688,0625** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **,** | **0** | **0** | **0** | **1** |
| **/** | **51,5** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **1** | **1** | **,** | **1** | **0** | **0** | **0** |
| **24** | 700,6875 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | **,** | 1 | 0 | 1 | 1 |
|  | 13,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | **,** | 1 | 1 | 1 | 0 |
| **+** | **714,5625** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **1** | **0** | **,** | **1** | **0** | **0** | **1** |
| **–** | **686,8125** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **50,5** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **,** | **1** | **0** | **0** | **0** |
| **25** | 699,1875 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | **,** | 0 | 0 | 1 | 1 |
|  | 14,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | **,** | 0 | 0 | 1 | 0 |
| **+** | **713,3125** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **0** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **685,0625** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **1** | **,** | **0** | **0** | **0** | **1** |
| **/** | **49,5** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **0** | **1** | **,** | **1** | **0** | **0** | **0** |
| **26** | 697,1875 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | **,** | 0 | 0 | 1 | 1 |
|  | 14,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | **,** | 0 | 1 | 1 | 0 |
| **+** | **711,5625** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **1** | **1** | **1** | **,** | **1** | **0** | **0** | **1** |
| **–** | **682,8125** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **48,5** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **,** | **1** | **0** | **0** | **0** |
| **27** | 694,6875 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | **,** | 1 | 0 | 1 | 1 |
|  | 14,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | **,** | 1 | 0 | 1 | 0 |
| **+** | **709,3125** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **1** | **0** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **680,0625** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **0** | **,** | **0** | **0** | **0** | **1** |
| **/** | **47,5** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **,** | **1** | **0** | **0** | **0** |
| **28** | 691,6875 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | **,** | 1 | 0 | 1 | 1 |
|  | 14,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | **,** | 1 | 1 | 1 | 0 |
| **+** | **706,5625** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **1** | **0** | **,** | **1** | **0** | **0** | **1** |
| **–** | **676,8125** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **1** | **0** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **46,5** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **,** | **1** | **0** | **0** | **0** |
| **29** | 688,1875 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | **,** | 0 | 0 | 1 | 1 |
|  | 15,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | **,** | 0 | 0 | 1 | 0 |
| **+** | **703,3125** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **1** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **673,0625** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **,** | **0** | **0** | **0** | **1** |
| **/** | **45,5** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **0** | **1** | **,** | **1** | **0** | **0** | **0** |
| **30** | 684,1875 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | **,** | 0 | 0 | 1 | 1 |
|  | 15,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | **,** | 0 | 1 | 1 | 0 |
| **+** | **699,5625** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **1** | **1** | **,** | **1** | **0** | **0** | **1** |
| **–** | **668,8125** | **1** | **0** | **1** | **0** | **0** | **1** | **1** | **1** | **0** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **44,5** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **,** | **1** | **0** | **0** | **0** |
| **31** | 679,6875 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | **,** | 1 | 0 | 1 | 1 |
|  | 15,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | **,** | 1 | 0 | 1 | 0 |
| **+** | **695,3125** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **1** | **1** | **1** | **,** | **0** | **1** | **0** | **1** |
| **–** | **664,0625** | **1** | **0** | **1** | **0** | **0** | **1** | **1** | **0** | **0** | **0** | **,** | **0** | **0** | **0** | **1** |
| **/** | **43,5** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **0** | **1** | **1** | **,** | **1** | **0** | **0** | **0** |
| **32** | 674,6875 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | **,** | 1 | 0 | 1 | 1 |
|  | 15,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | **,** | 1 | 1 | 1 | 0 |
| **+** | **690,5625** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **,** | **1** | **0** | **0** | **1** |
| **–** | **658,8125** | **1** | **0** | **1** | **0** | **0** | **1** | **0** | **0** | **1** | **0** | **,** | **1** | **1** | **0** | **1** |
| **/** | **42,5** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **0** | **1** | **0** | **,** | **1** | **0** | **0** | **0** |

6. Получить представления вещественных чисел с плавающей запятой в памяти ЭВМ и перемножить их. Результат представить в нормализованном виде. Пояснить выполненные действия. Выполнить проверку в десятичном виде.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **№ вар.** | **Числа (дес.)** | **Вес разряда числа** | | | | | | | | | | | | | | |
| 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 | **,** | 1/2 | 1/4 | 1/8 | 1/16 |
| **№ разряда** | | **9** | **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |  | **-1** | **-2** | **-3** | **-4** |
| **1** | 57,5 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 12,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | **,** | 0 | 0 | 1 | 0 |
| **\*** | **697,1875** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **0** | **1** | **,** | **0** | **0** | **1** | **1** |
| **2** | 56,5 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 12,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | **,** | 0 | 1 | 1 | 0 |
| **\*** | **699,1875** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **1** | **1** | **,** | **0** | **0** | **1** | **1** |
| **3** | 55,5 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 12,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | **,** | 1 | 0 | 1 | 0 |
| **\*** | **700,6875** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **0** | **0** | **,** | **1** | **0** | **1** | **1** |
| **4** | 54,5 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 12,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | **,** | 1 | 1 | 1 | 0 |
| **\*** | **701,6875** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **0** | **1** | **,** | **1** | **0** | **1** | **1** |
| **5** | 53,5 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 13,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | **,** | 0 | 0 | 1 | 0 |
| **\*** | **702,1875** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **1** | **0** | **,** | **0** | **0** | **1** | **1** |
| **6** | 52,5 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 13,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | **,** | 0 | 1 | 1 | 0 |
| **\*** | **702,1875** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **1** | **0** | **,** | **0** | **0** | **1** | **1** |
| **7** | 51,5 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 13,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | **,** | 1 | 0 | 1 | 0 |
| **\*** | **701,6875** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **0** | **1** | **,** | **1** | **0** | **1** | **1** |
| **8** | 50,5 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 13,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | **,** | 1 | 1 | 1 | 0 |
| **\*** | **700,6875** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **0** | **0** | **,** | **1** | **0** | **1** | **1** |
| **9** | 49,5 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 14,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | **,** | 0 | 0 | 1 | 0 |
| **\*** | **699,1875** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **1** | **1** | **,** | **0** | **0** | **1** | **1** |
| **10** | 48,5 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 14,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | **,** | 0 | 1 | 1 | 0 |
| **\*** | **697,1875** | **1** | **0** | **1** | **0** | **1** | **1** | **1** | **0** | **0** | **1** | **,** | **0** | **0** | **1** | **1** |
| **11** | 47,5 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 14,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | **,** | 1 | 0 | 1 | 0 |
| **\*** | **694,6875** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **1** | **1** | **0** | **,** | **1** | **0** | **1** | **1** |
| **12** | 46,5 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 14,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | **,** | 1 | 1 | 1 | 0 |
| **\*** | **691,6875** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **1** | **,** | **1** | **0** | **1** | **1** |
| **13** | 45,5 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 15,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | **,** | 0 | 0 | 1 | 0 |
| **\*** | **688,1875** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **,** | **0** | **0** | **1** | **1** |
| **14** | 44,5 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 15,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | **,** | 0 | 1 | 1 | 0 |
| **\*** | **684,1875** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **,** | **0** | **0** | **1** | **1** |
| **15** | 43,5 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 15,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | **,** | 1 | 0 | 1 | 0 |
| **\*** | **679,6875** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **1** | **1** | **1** | **,** | **1** | **0** | **1** | **1** |
| **16** | 42,5 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 15,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | **,** | 1 | 1 | 1 | 0 |
| **\*** | **674,6875** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **0** | **1** | **0** | **,** | **1** | **0** | **1** | **1** |
| **17** | 73,5 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 8,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **,** | 0 | 0 | 1 | 0 |
| **\*** | **597,1875** | **1** | **0** | **0** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **,** | **0** | **0** | **1** | **1** |
| **18** | 72,5 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 8,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **,** | 0 | 1 | 1 | 0 |
| **\*** | **607,1875** | **1** | **0** | **0** | **1** | **0** | **1** | **1** | **1** | **1** | **1** | **,** | **0** | **0** | **1** | **1** |
| **19** | 71,5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 8,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **,** | 1 | 0 | 1 | 0 |
| **\*** | **616,6875** | **1** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **0** | **0** | **,** | **1** | **0** | **1** | **1** |
| **20** | 70,5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 8,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **,** | 1 | 1 | 1 | 0 |
| **\*** | **625,6875** | **1** | **0** | **0** | **1** | **1** | **1** | **0** | **0** | **0** | **1** | **,** | **1** | **0** | **1** | **1** |
| **21** | 69,5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 9,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | **,** | 0 | 0 | 1 | 0 |
| **\*** | **634,1875** | **1** | **0** | **0** | **1** | **1** | **1** | **1** | **0** | **1** | **0** | **,** | **0** | **0** | **1** | **1** |
| **22** | 68,5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 9,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | **,** | 0 | 1 | 1 | 0 |
| **\*** | **642,1875** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **,** | **0** | **0** | **1** | **1** |
| **23** | 67,5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 9,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | **,** | 1 | 0 | 1 | 0 |
| **\*** | **649,6875** | **1** | **0** | **1** | **0** | **0** | **0** | **1** | **0** | **0** | **1** | **,** | **1** | **0** | **1** | **1** |
| **24** | 66,5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 9,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | **,** | 1 | 1 | 1 | 0 |
| **\*** | **656,6875** | **1** | **0** | **1** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **,** | **1** | **0** | **1** | **1** |
| **25** | 65,5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 10,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | **,** | 0 | 0 | 1 | 0 |
| **\*** | **663,1875** | **1** | **0** | **1** | **0** | **0** | **1** | **0** | **1** | **1** | **1** | **,** | **0** | **0** | **1** | **1** |
| **26** | 64,5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 10,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | **,** | 0 | 1 | 1 | 0 |
| **\*** | **669,1875** | **1** | **0** | **1** | **0** | **0** | **1** | **1** | **1** | **0** | **1** | **,** | **0** | **0** | **1** | **1** |
| **27** | 63,5 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 10,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | **,** | 1 | 0 | 1 | 0 |
| **\*** | **674,6875** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **0** | **1** | **0** | **,** | **1** | **0** | **1** | **1** |
| **28** | 62,5 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 10,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | **,** | 1 | 1 | 1 | 0 |
| **\*** | **679,6875** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **1** | **1** | **1** | **,** | **1** | **0** | **1** | **1** |
| **29** | 61,5 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 11,125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | **,** | 0 | 0 | 1 | 0 |
| **\*** | **684,1875** | **1** | **0** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **,** | **0** | **0** | **1** | **1** |
| **30** | 60,5 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 11,375 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | **,** | 0 | 1 | 1 | 0 |
| **\*** | **688,1875** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **,** | **0** | **0** | **1** | **1** |
| **31** | 59,5 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | **,** | 1 | 0 | 0 | 0 |
|  | 11,625 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | **,** | 1 | 0 | 1 | 0 |
| **\*** | **691,6875** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **1** | **,** | **1** | **0** | **1** | **1** |
| **32** | 58,5 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | **,** | 1 | 0 | 0 | 0 |
|  | 11,875 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | **,** | 1 | 1 | 1 | 0 |
| **\*** | **694,6875** | **1** | **0** | **1** | **0** | **1** | **1** | **0** | **1** | **1** | **0** | **,** | **1** | **0** | **1** | **1** |