
Size = 8

1 | [??0?1?01]
01011001
11011001
10001101
00011101
10001001 bad
2 | [0???10?1]
00001001
01011001
01111011
00011001
01001001 bad
3 | [??00?1?1]
00001101
10001101
01000111
11001111
11000111 bad
4 | [?010??1?]
00100111
10101010
10101010 good 2 repeats
5 | [01??0?1?]
01000110
01110110
01010011
01010110
01000011 bad
6 | [??110?0?]
00110001
10110001
10110101
01110101
11110101 bad
7 | [?1001??]
01001001
11001111
01001110
11001000
11001011 bad
8 | [??0?10?1]
00001011
11011001
10001011
00001011
10001011 bad
9 | [0?01??1?]
00011011
00011011

00011110
01011011
01011011 bad
10 | [0?1?1?0?]
01101100
00101101
00101001
01111001
00101100 bad
11 | [?011??0?]
10111101
00110000
00111101
10110100
10111000 bad
12 | [?0?1?1?0]
10111100
10011100
10011110
00111110
00110110 bad
13 | [0??01??1]
00101001
00001011
01001011
01001101
01101111 bad
14 | [?1??1?00]
01101100
11001000
01111100
01111000
11101100 bad
15 | [01????01]
01101001
01001101
01101101
01100101
01010101 bad
16 | [1??0??10]
10100110
11100110
11100010
11100010
11100010
10101010 good 23 repeats
17 | [?00??11?]
00011111
00011110
10000111
00010110
00011111 bad

18 | [?1?010??]
01101001
11101000
11001000
01101010
11001000 bad
19 | [?01?1??0]
00111110
10101000
00111100
10101110
00111100
10101010 good 7 repeats
20 | [??001?1?]
01001110
11001010
10001111
00001110
01001011 bad
21 | [?1?01?0?]
01001101
11101001
01001001
11101100
01001001 bad
22 | [01?0??1?]
01101011
01100010
01100011
01000010
01000010 bad
23 | [???10?01]
10110101
11110001
00010001
11010101
11010001 bad
24 | [0110????]
01100001
01100101
01100100
01101001
01101010 bad
25 | [0??01??1]
01001101
00101011
01001001
01001011
01001011 bad
26 | [1?0?1??0]
10011000
10001110

11001110
11011110
10011100 bad
27 | [1??10??0]
10010000
11010000
11110110
10010110
11110100 bad
28 | [??01?1?]
10001110
00001011
00001110
00001010
00101110
10101010 good 13 repeats
29 | [01??1?0?]
01101001
01101100
01001100
01111100
01101001 bad
30 | [11?0??0?]
11100000
11101100
11100101
11101000
11100100 bad
31 | [0???011?]
01110111
01010111
00010111
01010111
00100110 bad
32 | [??010?1?]
01010010
11010111
11010011
11010011
10010110 bad
33 | [1?0??01?]
10010011
10001011
10001011
10011011
10010011 bad
34 | [???1?001]
01011001
11111001
00111001
11010001
11010001 bad

35 | [?1??0?01]

11010101

11100001

01010101

11000101

01110001 bad

36 | [010?1??]

01011000

01001100

01011001

01001110

01001001 bad

37 | [??101?0?]

11101101

01101001

01101000

01101001

10101101 bad

38 | [??0?11?0]

11001110

01001100

10001110

00011100

10001100 bad

39 | [0?1??01?]

01111011

01111011

00110011

01110010

00101011 bad

40 | [0?1??10?]

00101100

00100101

01100100

01100100

00100100 bad

Size = 12

1 | [?11??00??01?]

111100000010

011110000010

111000011011

011010011011

011010011010 bad

2 | [?10??0?1?10?]

110010010101

010110010101

110010110100

010110111101

110000111101 bad

3 | [1?1?00????10]

111000110010
101000010010
101000111010
101000111010
111000101010 bad
4 | [1011?0??0??]
101100110010
101100010000
101100110010
101110000100
101100000010 bad
5 | [00????1?1?01]
000100101101
001101111001
001100101101
000101111101
000100101001 bad
6 | [1?????00101]
110011100101
110101000101
101010100101
111000100101
111111000101 bad
7 | [?101????00?1]
010110100011
010110110011
110101010001
010101010011
010100010001 bad
8 | [????10?01?10]
000110101110
101010101110
110010001010
111010101010
010010001110
101010101010 good 71 repeats
9 | [11??0??10?0?]
110100110000
111000110000
110000010001
111100110100
110000110000 bad
10 | [0??1?1?10??0]
011101110110
011101010100
011101110000
001101110010
001111110000 bad
11 | [??0111??0??0]
110111100110
010111010110
010111000100

010111010110
000111110000 bad
12 | [1?0??1001??]
110111001010
110111001010
100101001110
100011001101
110001001011 bad
13 | [?0?1?001???1]
100100010011
101110011001
101110010001
100100011111
101110010101 bad
14 | [?1010???0?1]
010101011001
010101101001
010101000001
010100101011
110100011001 bad
15 | [???01?110?0]
101001111000
001001011010
101001111010
110101011010
101101111010 bad
16 | [00?0????111]
000001011111
000000011111
001010011111
000001110111
000011111111 bad
17 | [1?101?0???0?]
111010001001
101010010100
101010010000
101011001001
111010010100 bad
18 | [0?1????1100?]
011011111001
001111011001
011100011000
001111011000
011110111000 bad
19 | [???110?100??]
001110010010
100110010011
110110110000
000110010010
101110010010 bad
20 | [?01?0??0?1?1]
001001000111

001001101111
001001101101
001101100101
101000101111 bad
21 | [?0??1001?1??]
101010011110
001010010110
101010011111
000010011110
001110010110 bad
22 | [?110???01?0?]
011000001100
011000101101
011011101000
011001001000
011011101000 bad
23 | [00?1???1??10]
000111010110
000111011010
001110010110
000110111110
000111011010 bad
24 | [?1??001???01]
010000101001
010100101101
010000100101
111000111101
011100111101 bad
25 | [?001??0??1?1]
000110010111
000111010111
100110010111
000111000111
000100011101 bad
26 | [?1?0?1?10??0]
110001010100
010001110000
110001110110
110001010100
011011110110 bad
27 | [??0?10??110?]
100010011101
000110101100
010010011100
110010011100
000110111100 bad
28 | [0??1??00?11?]
001100000110
010111001110
011111000110
010101000111
011101001110 bad

29 | [10???110??0?]
100101100000
101011101000
101101100001
100101100100
101101101000 bad
30 | [000?1????1?1]
000010101101
000011111101
000110111111
000110001111
000111101111 bad
31 | [?101????10?0]
010100111000
110111101000
110101001000
010101111010
110110111000 bad
32 | [?00?1?11??0?]
000011111000
000010111001
000110111000
100010110001
000010110100 bad
33 | [00?1??0?1??1]
000111011001
000111011001
001101001111
001101001001
001110011101 bad
34 | [??0??0??1011]
000010111011
000000011011
110010111011
010010111011
000000111011 bad
35 | [10?1?0????10]
100110011110
101100001110
100110111010
101100000010
101110110110 bad
36 | [01?0??1?1??0]
010010111100
011001111110
011001111000
011000101000
010010111100 bad
37 | [110?01???0??]
110101011010
110101111011
110101010010

110101011001
110001001000 bad
38 | [1?10?0???0?1]
111000101011
111000001011
101010111011
111000000001
101010011011 bad
39 | [?1?10?0?1?0?]
111101001000
111101001101
110100011101
010100001001
110101001001 bad
40 | [?1?1??100?0?]
110110100000
111111100000
111101100000
110110100000
111111100000 bad

Size = 16

1 | [01???0?00???1??11]
0111010000010011
0101010011110111
0111000001110011
0100010011011011
0110010011111111 bad
2 | [?0??01?10?1??10?]
1000011101111100
0011011101101100
1010010100100100
1010010100111101
1010010101110100 bad
3 | [?111?0?1??0?0?0?]
0111100110010001
0111101110010000
0111000111000000
0111100111000100
1111000110000101 bad
4 | [1011??1?????0?00]
1011101010000000
1011101110100100
1011101001110000
1011011001010000
1011111111100000 bad
5 | [0??0101?1?01????]
0010101110010011
0010101011011110
0100101111011011
0100101010011011

0010101011011110 bad
6 | [?0?01????10?011]
1010111111100011
0010110001100011
0010110101101011
1010101100100011
0010110000100011 bad
7 | [?0?10??1?01?1??0]
0011010110101110
1001001110111000
1001011110111100
0011001110101100
1011001100111100 bad
8 | [????010?1??0?110]
1010010011000110
0100010010000110
1101010110000110
0101010111100110
1100010011000110 bad
9 | [0??0???101??110?]
0010100101111100
0010010101101100
0110101101011101
0010100101011100
0000001101111101 bad
10 | [10??0??0?1?1??01]
1011001011010001
1010001011111001
1000000011110001
1001010011011001
1001001001111001 bad
11 | [11???0?00?01?1??]
1100100000011100
1101000000010101
1110001000011110
1111100000011101
1110001000011110 bad
12 | [???0011???1?00?1]
0000011101100001
0100011110110001
0110011001110011
1000011110110001
0000011000110001 bad
13 | [?0????01?01110??]
0001010110111000
1000000110111010
0011000110111011
0011110100111000
0010100110111010 bad
14 | [?0??1??0?0101?1?]
0000110010101010
0010100010101111

0000110010101011
0011100010101010
1001101000101111
1010101010101010 good 197 repeats
15 | [?11??1???0100?0?]
1111110100100101
0111111100100101
1110011000100100
1110110100100001
1111111100100101 bad
16 | [?01?011??100????]
1010011111001000
1011011101001000
1011011001000100
0011011111000110
0011011111000111 bad
17 | [1000???11??0???1]
1000000111000001
1000011111000101
1000110110100011
1000011110000111
1000010110000111 bad
18 | [??1??0?0?010??11]
1010001010101111
0110101000101111
1111101000101011
1111101010100011
1011101010101111 bad
19 | [?1?????0?00?0111]
0111010000000111
0110011000000111
1100001010000111
1100000010000111
1110010000000111 bad
20 | [001????1?00?1??1]
0010000110001011
0010010100001101
0010110100001011
0010111110001101
0010010110001001 bad
21 | [1010?01????0??1?]
1010001100100010
1010101011101010
1010101011000010
1010101100100011
1010001110100110
1010101010101010 good 158 repeats
22 | [???010?1?1?1?00]
0000101101010100
1000101111011100
0010101101011100
1010101111111100

0000100101110100 bad
23 | [??0?0?011?11??0?]
0100000111111001
0000000110110101
1100000111111001
0100010110110000
0100000110110000 bad
24 | [0?1?01???0?0??11]
0111010000100011
0011010000000111
0010010010100111
0110010010100011
0111011110101111 bad
25 | [10?00???1????1?01]
1000010111101101
1010010110001101
1000011011101001
1000000010111101
1010001111001101 bad
26 | [11?100?0?0????1?]
1101000000010011
1111000000001010
1111001010001010
1111000010100011
1111001010110011 bad
27 | [??1110????00?1?0]
1011101011000110
1011101001001110
1011101010000110
1111100000001100
0011101101001110 bad
28 | [?0?1??10????0101]
1001011000110101
0001101010000101
0001011011110101
0011001000010101
0011111001110101 bad
29 | [?10?0?11?1?0???0]
0100011111000100
1100011101100010
1101001101101100
0100001101101100
0101001111000100 bad
30 | [?010??1?00?1?1??]
0010111000010101
1010001000011110
0010011000111101
1010101000011110
1010101000011100 bad
31 | [001?01?1?????01]
0010011111001101
0011011100110001

0011010101010101
0010011101101001
0010011111010001 bad
32 | [1???0?0?0110??1]
1001000010110011
1010000000110101
1101101010110111
1011101000110011
1011100010110101 bad
33 | [1?1100?0?0?????1]
1011000000110001
1111001000110111
1011000000001111
1011001010011101
1111001000010111 bad
34 | [10??11?10?????00]
1011111101000100
1011111101101100
1001110101100000
1010110100111000
1000111100100100 bad
35 | [?1001??01????10?]
1100110011111101
0100101011110100
0100110011010101
0100100011001101
1100111011001100 bad
36 | [0???1?0?111?0?0?]
0001110111110001
0001110011110101
0000110111100001
0011110011110101
0110100011110001 bad
37 | [?1??11??00??001?]
1111111000110010
1111111000100011
0101110100110010
0101111100000010
0101111100010010 bad
38 | [110?0??011??0???]
1100000011110010
1101000011010100
1101000011000001
1100000011110100
1101011011110010 bad
39 | [?1101?0?0?1??0??]
1110110001111011
1110110100101001
1110110001110011
0110110100110011
0110110100111011 bad
40 | [001?1?00??1??1??]

0010100000101110
0010110000101101
0011110010101110
0010100011100100
0010110001101101 bad

Size = 20

1 | [?0???1000???11?01??1]
00100100001011001101
00101100000011001101
00000100001011101111
10110100000111001101
00001100001011101111 bad
2 | [?11?1?1???1?0??0?000]
01111110001100000000
11101111001100100000
01111010001000100000
01101110001000000000
01111011001000000000 bad
3 | [00?????1?0?1?1010?1?]
00100101100111010010
00010011100111010110
00000011000101010111
00010001101101010111
00000001100111010110 bad
4 | [11?0?10?01?00????1??]
11100101010001100100
11000100010000010111
11001101011000000100
11100101011000001111
11001100010001110101 bad
5 | [?0??01??11100???0?1]
00000111111000000001
00100110111001010001
10110100111001111011
00010111111000101001
10000110111001110001 bad
6 | [00??10???100????1?11]
00111011110000101111
00111001110000111111
00111001110000101111
00001010110000001111
00101010010000001111 bad
7 | [??1???0100??010??1?1]
01101001001101001111
01111101001101011101
10100101000101001101
01110101001101001101
11111001000001000111 bad
8 | [?100?1?1?001?01?????]
11001101100100100001

01000101000110111100
11001111100110110111
01000111000110100011
01001111000100101010 bad
9 | [10?01??0010???11????]
10001100010010111111
10101000010000110001
10101000010011111010
10101110010111111010
10001010010011111110 bad
10 | [???1?110?10?0?100???]
00110110010001100000
11110110010000100001
00110110110000100100
10110110110101100110
10010110010101100001 bad
11 | [?0011?0?1?1??00???1?]
00011101111100011111
10011100111110011011
10011000111110001111
00011000111110010111
00011001101010000110 bad
12 | [?1011???0?????0101?0]
01011110000000010110
01011011011110010110
01011011000000010110
11011101011100010100
11011100010001010110 bad
13 | [1?0????0?011?1?1??00]
10011010001101111000
10011110101101011000
11001010001111011100
10001000001101111000
11010110001101110100 bad
14 | [0?01?1?0???0???01?11]
01011100000011101011
00010110011010001011
01011100011010101011
01011100101010001111
01010110001011101011 bad
15 | [010??1001??0????1??1]
01010100110010001111
01011100101001011011
01000100100010111001
01010100100000001111
01011100101001011011 bad
16 | [?0?10?0??11?1?01??0?]
10010100111011011101
00010001011110010100
10110100111110011100
00010000111110010100
10110000111110010101 bad

17 | [????100?111?1???000?]
11011001111011100000
00001001111111000000
00101001111110110000
00111001111010110000
01101001111010110000 bad
18 | [0?1??0?1011?100?????]
01100011011110010101
00111011011110001000
00100011011110000101
00111001011010000110
00101001011110001100 bad
19 | [???1?1?1??0???0011]
00011011101001110011
10001110111001100011
10001011101011110011
00011111100000010011
00011011110011010011 bad
20 | [???1??1110??0000??1?]
01010011100100000111
00010111101100001011
11111011100100001011
00011111100000000111
11111111101100001110 bad
21 | [??0?0??10?011?1?0??1]
01000111000110100101
00010011010110100001
00000111000110110011
10010011010111100101
00000111010111100001 bad
22 | [?0????01?001111????0]
00001101000111100100
00100101000111110010
00111001100111100010
10011001100111111100
10111101100111111000 bad
23 | [11?10???0?1?0??0??01]
11010010001000101101
11110001001100001101
11010101011000100001
11010010011000000101
11010101001001100101 bad
24 | [0??0?1???100?0111???]
01101111010010111100
01100100010010111100
00101111110010111010
00101111010000111011
00001111010000111001 bad
25 | [?1?10??01?1?00??01??]
11010100111000000100
11110110111100110111
11110100111000110111

11110110111100100101
01110110101000000100 bad
26 | [?001?110???010??1??]
00011110111010101001
00010110001010101111
10011110001010101000
00010110000010001111
10011110001010001010 bad
27 | [?1??0?1??10?100?0?1?]
11110011010110010010
01110111110010010010
11000011010010010011
01100110110110000111
01100110110110010110 bad
28 | [???0?0??100?101??11?]
11100000100110110111
11101011100010101110
11101010100010101110
00000011100110101110
01100011100010111111 bad
29 | [?001100?10??????11?]
10011001101111101110
10011000101000111110
00011000101100010111
10011001100001111110
00011001101001111110 bad
30 | [0?1100101???????10?]
01110010101100110101
00110010111110000100
01110010110110111101
01110010110001101100
00110010110000100100 bad
31 | [1001???0??0??1?10?1?]
10011110000101010011
10011010110001110111
10010000000011110110
10011100010101010111
10011100100111010010 bad
32 | [?10??01??1110??0??0?]
01010011011101100001
11000011111101001100
01011010011100101100
11000010011101001100
11000011011100100001 bad
33 | [???0?00??01?0?1??111]
01101000001001101111
00001000001100111111
11000000001000111111
10000001101100100111
00101001001000111111 bad
34 | [?1?0?1?00?1??1?01??0]
01000100011111101110

```

01000100011011001100
01101100001101001100
01000110001111101100
11000110011011101000 bad
35 | [10?0100????1????110]
10101000101111110110
10101001110111000110
10101001010010001110
10101000111110100110
10101001011010010110 bad
36 | [?1?0???01?0?01?1?1?0]
01000000100001011100
01101110100001111110
11100000100101111100
01101100100001111100
11001100110101110110 bad
37 | [??01??0?10??01??101?]
00011001101101011011
00010100100001111010
00011000101001101011
00011000101001001010
01010101100001011011 bad
38 | [??01?0????101001??1?]
11010001011010011110
01010000001010011011
01010000011010011010
11011001001010011010
10011001011010011111 bad
39 | [???1??1?00101??0?0?1]
10011011001011001011
00110111001011000001
00111010001011100001
11011111001010001001
10111111001011001001 bad
40 | [???1?0101?10?001????]
01010010111010011010
01010010101010010001
11010010101000011101
10111010101010011010
11110010101000010110 bad

```

Results

Size : 8 Avr = 901
 Size : 12 Avr = 976
 Size : 16 Avr = 958
 Size : 20 Avr = 1000

Results

Size : 8 Avr = 4
 Size : 12 Avr = 1

Size : 16 Avr = 2

Size : 20 Avr = -