课程：数字逻辑设计

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作业1

1-3

|  |  |  |  |
| --- | --- | --- | --- |
| BIN | OCT | DEC | HEX |
| 10000 | 20 | **16** | 10 |
| 10001 | 21 | **17** | 11 |
| 10010 | 22 | **18** | 12 |
| 10011 | 23 | **19** | 13 |
| 10100 | 24 | **20** | 14 |
| 10101 | 25 | **21** | 15 |
| 10110 | 26 | **22** | 16 |
| 10111 | 27 | **23** | 17 |
| 11000 | 30 | **24** | 18 |
| 11001 | 31 | **25** | 19 |
| 11010 | 32 | **26** | 1A |
| 11011 | 33 | **27** | 1B |
| 11100 | 34 | **28** | 1C |
| 11101 | 35 | **29** | 1D |
| 11110 | 36 | **30** | 1E |
| 11111 | 37 | **31** | 1F |

1-4

1. 96 Kbits = 98 304 bits
2. 640 Mbits = 671 088 640 bits
3. 4 Gbits = 4 294 967 296 bits

1-9

|  |  |  |  |
| --- | --- | --- | --- |
| DEC | BIN | OCT | HEX |
| **369.3125** | 1 0111 0001.0101 | 561.24 | 171.5 |
| 189.625 | **1011 1101.101** | 275.5 | BD.A |
| 214.625 | 1101 0110.101 | **326.5** | D6.A |
| 62407.625 | 1111 0011 1100 0111.101 | 171 707.5 | **F3C7.A** |

1-12

1. 1101 × 1011 = 10001111

1-15

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DEC | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| Base20 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F | G | H | I | J | 10 |

1. 200710 = 50720
2. BCI.G20 = 4658.810

1-16

1. r = 15.
2. r = 7.

1-19

694 = 0110 1001 0110

835 = 1000 0011 0101

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 6 | 9 | 4 |  |
|  | **0110** | **1001** | **0110** |  |
|  | 8 | 3 | 5 |  |
| **+** | **1000** | **0011** | **0101** | Step 0 Conversion |
|  | **1110** | **1100** | **1001** | Step 1 Directly add into sum |
|  | 14 | 12 | 9 |  |
| **0001** | **0101** | **0010** | **1001** | Step 2 Move all values exceeding 10; adding 1 to next bit and subtracting 10 at this bit |
| 1 | 5 | 2 | 9 |  |
|  |  |  |  |  |