**The space shown every four bits is for readability only.**

**Show all leading zeros.**

|  |  |
| --- | --- |
| 1. Binary = 1000 1101  Hexadecimal = 8D  Converting first to decimals then to hexadecimal  (0x20)+(0x21)+(0x22)+(1x23)=8  (1x20)+(0x21)+(1x22)+(1x23)=13=D  = 8D | 2. Binary = 1010 1100  Hexadecimal = AC  Converting first to decimals then to hexadecimal  (0x20)+(1x21)+(0x22)+(1x23)=10=A  (0x20)+(0x21)+(1x22)+(1x23)=12=C  = AC |
| 3. Binary = 1000 1001  Hexadecimal = 89  Converting first to decimals then to hexadecimal  (0x20)+(0x21)+(0x22)+(1x23)=8  (1x20)+(0x21)+(0x22)+(1x23)=9  = 89 | 4. Binary = 1110 1100  Hexadecimal = EC  Converting first to decimals then to hexadecimal  (0x20)+(1x21)+(1x22)+(1x23)=14=E  (0x20)+(0x21)+(1x22)+(1x23)=12=C  = EC |
| 5. Binary = 1111 1111  Hexadecimal = FF  Converting first to decimals then to hexadecimal  (1x20)+(1x21)+(1x22)+(1x23)=15=F  (1x20)+(1x21)+(1x22)+(1x23)=15=F  = FF | 6. Binary = 1101 1000  Hexadecimal = D8  Converting first to decimals then to hexadecimal  (1x20)+(0x21)+(1x22)+(1x23)=13=D  (0x20)+(0x21)+(0x22)+(1x23)=8  = D8 |
| 7. Hexadecimal = 0xFFFF  Binary = 1111 1111 1111 1111  Converting first to decimals then to binary  (Fx160)+(Fx161)+(Fx162)+(Fx163)  (15x160)+(15x161)+(15x162)+(15x163)  15+240+3840+61440 = 6553510   |  |  |  | | --- | --- | --- | | 2 | 65535 | Remainder | | 2 | 32767 | 1 | | 2 | 16383 | 1 | | 2 | 8191 | 1 | | 2 | 4095 | 1 | | 2 | 2047 | 1 | | 2 | 1023 | 1 | | 2 | 511 | 1 | | 2 | 255 | 1 | | 2 | 127 | 1 | | 2 | 63 | 1 | | 2 | 31 | 1 | | 2 | 15 | 1 | | 2 | 7 | 1 | | 2 | 3 | 1 | | 2 | 1 | 1 | |  | 0 | 1 | | 8. Hexadecimal = 0x0A1D  Binary = 1101 0001 1010 0000  Converting first to decimals then to binary  (0x160)+(Ax161)+(1x162)+(Dx163)  (0x160)+(10x161)+(1x162)+(13x163)  0+160+256+53248 = 5366410   |  |  |  | | --- | --- | --- | | 2 | 53664 | Remainder | | 2 | 26832 | 0 | | 2 | 13416 | 0 | | 2 | 6708 | 0 | | 2 | 3354 | 0 | | 2 | 1677 | 0 | | 2 | 838 | 1 | | 2 | 419 | 0 | | 2 | 209 | 1 | | 2 | 104 | 1 | | 2 | 52 | 0 | | 2 | 26 | 0 | | 2 | 13 | 0 | | 2 | 6 | 1 | | 2 | 3 | 0 | | 2 | 1 | 1 | |  | 0 | 1 | |
| 9. Hexadecimal = 0x13AB  Binary = 1011 1010 0011 0001  (1x160)+(3x161)+(Ax162)+(Bx163)  (1x160)+(3x161)+(10x162)+(11x163)  1+48+2560+45056 = 4766510   |  |  |  | | --- | --- | --- | | 2 | 47665 | Remainder | | 2 | 23832 | 1 | | 2 | 11916 | 0 | | 2 | 5958 | 0 | | 2 | 2979 | 0 | | 2 | 1489 | 1 | | 2 | 744 | 1 | | 2 | 372 | 0 | | 2 | 186 | 0 | | 2 | 93 | 0 | | 2 | 46 | 1 | | 2 | 23 | 0 | | 2 | 11 | 1 | | 2 | 5 | 1 | | 2 | 2 | 1 | | 2 | 1 | 0 | |  | 0 | 1 | | 10. Hexadecimal = 0x0309  Binary = 1001 0000 0011 0000  (0x160)+(3x161)+(0x162)+(9x163)  0+48+0+36864 = 3691210   |  |  |  | | --- | --- | --- | | 2 | 36912 | Remainder | | 2 | 18456 | 0 | | 2 | 9228 | 0 | | 2 | 4614 | 0 | | 2 | 2307 | 0 | | 2 | 1153 | 1 | | 2 | 576 | 1 | | 2 | 288 | 0 | | 2 | 144 | 0 | | 2 | 72 | 0 | | 2 | 36 | 0 | | 2 | 18 | 0 | | 2 | 9 | 0 | | 2 | 4 | 1 | | 2 | 2 | 0 | | 2 | 1 | 0 | |  | 0 | 1 | |