

UVa Email ID (no aliases please)

__skt3rt_____

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Section _9 – 10:35 AM Lab

Lab 4 - Radix Conversion Worksheet

Convert:

- 1.
- $0x4F45$
- into octal

$$0x4F45 = 20293 \text{ in decimal}$$

$$20293 - 4 \cdot 8^4 = 3909$$

$$3909 - 7 \cdot 8^3 = 325$$

$$325 - 5 \cdot 8^2 = 5$$

$$5 - 5 \cdot 8^0 = 0$$

$$0x4F45 = 47505 \text{ octal}$$

- 2.
- 269_{10}
- into radix 7

$$269 - 5 \cdot 7^2 = 24$$

$$24 - 3 \cdot 7^1 = 3$$

$$3 - 3 \cdot 7^0 = 0$$

$$269 = 533 \text{ radix } 7$$

- 3.
- 110011011110_2
- into decimal

$$2+4+8+16+64+128+1024+2048=3294$$

$$110011011110=3294$$

+

- 4.
- $2BD_{19}$
- into decimal

$$D=13 \implies 13 \cdot 19^0 = 13$$

$$B=11 \implies 11 \cdot 19^1 = 209$$

$$2 \cdot 19^2 = 722$$

$$2BD \text{ radix } 19 = 13+209+722 = 944$$

5. Given the following positive binary integer in two's complement:
0101001101011101

a) Convert the number to hexadecimal:

The first bit is 0, so the number is positive

Magnitude: $1+4+8+16+64+256+512+4096+16384 = 21341$

$21341 - 5*16^3 = 861$

$861 - 3*16^2 = 93$

$93 - 5*16^1 = 13$

$13 - 13*16^0 = 0$

Hexadecimal representation: 0x535D

b) Negate the number.

Normal Number: 0101001101011101

Flip the bits: 1010110010100010

Add 1: 1010110010100011