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Name Derek Wu **Lab section** _____

Lab 4 - Radix Conversion Worksheet

Convert:

1. 0x4F45 into octal

a) 0x4F45 = 4*(16^3) + 15*(16^2) + (4*16) + 5
= 20293 in base 10
b) To convert to octal, find the largest power of 8 that is less than 20293
   i. 4*(8^4) = (4*4096) = 16384
   ii. Then find the multiplier of 8^3 that is less than 3909, which is 7.
   iii. Then find the multiplier of 8^2 that is less than 325, which is 5.
   iv. Then find the multiplier of 8^0 that is equals than 5, which is 5.
   v. Convert to octal form

0x4F45 =047505_8

2. 269_{10} into radix 7

a) To convert to radix 7, find the largest power of 7 that is less than 269
   i. 5*(7^2) = (5*49) = 245
   ii. Then find the multiplier of 7^1 that is less than 24, which is 3.
   iii. Then find the multiplier of 7^0 that is equals to 3, which is 3.
   iv. Convert to radix 7

$269_{10} = 533_7$

3. 110011011110_2 into decimal

a) To convert to decimal, sum all of the 2^n.
   i. 2^11 + 2^10 + 2^7 + 2^6 +2^4 + 2^3 + 2^2 + 2^1 = 3294

$110011011110_2 = 3294_{10}$

4. $2BD_{19}$ into decimal

a) $2BD_{19}$ = 2*(19^2) + 11*(19^1) + (13)
= 944 in base 10

$2BD_{19} = 944_{10}$

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

a) Convert the number to hexadecimal:

0101 0011 0101 1101
(5) (3) (5) (D)
0x535D

b) Negate the number.

For twos complement the most left bit is the sign. Therefore, the negated number is:

1101001101011101 and 0xD35D