Boris Topalov
Bnt4yb
2/9/2020
Filename: radixWorksheet.pdf

UVa Email ID (no aliases please): _____bnt4yb_____

Name ____Boris Topalov_____ Lab section __5pm Tues.__

Lab 4 - Radix Conversion Worksheet

Convert:

1. 0x4F45 into octal

   4f45 = 5 * 16^0 + 4 * 16^1 + f * 16^2 + 4 * 16^3
   = 5 + 64 + 3840 + 16384
   = 20293 base 10

   20293 / 8 = 2536 **R5**
   2536 / 8 = 317 **R0**
   317 / 8 = 39 **R5**
   39 / 8 = 4 **R7**
   4/8 = 0 **R4**

   So… **47,505 base 8**

2. 269_{10} into radix 7

   269 / 7 = 38 **R3**
   38 / 7 = 5 **R3**
   5 / 7 = 0 **R5**

   So… **533 base 7**

3. 110011011110_2 into decimal

   1100 1101 1110
   = 0 + 2 + 4 + 8 + 16 + 64 + 128 + 1024 + 2048
   = 3294

   3294 base 10

4. $2BD_{19}$ into decimal

   2bd = 13 * 19^0 + 11 * 19^1 + 2 * 19^2
   = 209 + 722 + 13
   = **944 base 10**

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

   a) Convert the number to hexadecimal:
      0101 0011 0101 1101

      Byte 1 = 5
      Byte 2 = 3
      Byte 3 = 5
      Byte 4 = d (13)

      0x535d

   b) Negate the number.
      1010 1100 1010 0010 + 1 = 1010 1100 1010 0011 =

Byte 1 = a (10)
Byte 2 = c (12)
Byte 3 = a (10)
Byte 4 = 3

0xACA3