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File: radixWorksheet.pdf
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Convert:

1. 0x4F45 into octal

$$\begin{aligned} 0x4F45 &= 4(16^3) + F(16^2) + 4(16) + 5 \\ &= 4(4096) + 15(256) + 4(16) + 5 \\ &= 16384 + 3840 + 64 + 5 \\ &= 20293_{10} \end{aligned} \tag{1}$$

$$\begin{aligned} 20293_{10} &= 4(8^4) + 7(8^3) + 5(8^2) + 5 \\ &= 47505_8 \end{aligned} \tag{2}$$

2. 269_{10} into radix 7

$$\begin{aligned} 269_{10} &= 5(7^2) + 3(7) + 3 \\ &= 533_7 \end{aligned} \tag{3}$$

3. 110011011110_2 into decimal

$$\begin{aligned} 110011011110_2 &= 1(2^{11}) + 1(2^{10}) + 0(2^9) + 0(2^8) + 1(2^7) + 1(2^6) + 0(2^5) + 1(2^4) + 1(2^3) + 1(2^2) + 1(2^1) \\ &= 2048 + 1024 + 128 + 64 + 16 + 8 + 4 + 2 \\ &= 3292 \end{aligned} \tag{4}$$

4. $2BD_{19}$ into decimal

$$\begin{aligned} 2BD_19 &= 2(19^2) + B(19^1) + D(19^0) \\ &= 2(361) + 11(19) + 13 \\ &= 944 \end{aligned} \tag{5}$$

5. Given the following positive binary integer in two's complement: 0101001101011101
   a. Convert the number to hexadecimal.

$$0101 = 5_{10} = 5_{16} \tag{6}$$
$$0011 = 3_{10} = 3_{16} \tag{7}$$
$$0101 = 5_{10} = 5_{16} \tag{8}$$
$$1101 = 13_{10} = \mathrm{D}_{16} \tag{9}$$
$$0101001101011101_2 = 0\text{x}535\text{D} \tag{10}$$

   b. Negate the number.

$$1101001101011101 \tag{11}$$