

EEL3701C - Homework 1

Charles Richardson

1. Convert w/ horner scheme

$$\begin{array}{l}
 \text{a) } 563_7 \text{ to Base 9} \\
 ((5_9)(7_9) + 6_9)7_9 + 3_9 \\
 \boxed{563_7 \rightarrow 352_9}
 \end{array}$$

$$b) 435_6 \text{ to Base } 8$$

$\xrightarrow{(33)_6 + 5_8}$

$$\begin{array}{r} 33 \\ \times 6 \\ \hline 242 \end{array}$$

$$(4_8 + 3_8)6_8 + 5_8$$

$$(30_8 + 3_8)6_8 + 5_8$$

$$242_8 + 5_8 = 247_8$$

$435_6 \rightarrow 247_8$

Convert w/ successive integer division

$$d) \quad 6A_{13} \rightarrow \text{Base } 6$$

$(6A_{13} \rightarrow 224_6)$

$\begin{array}{r} 11 \\ 6 \overline{) 6A} \\ -6 \\ \hline 0A \\ \hline \boxed{4} \end{array}$	$\begin{array}{r} 2 \\ 6 \overline{) 11^{\text{r1}}} \\ \underline{-12} \\ \hline C \\ \boxed{r2} \end{array}$	$\begin{array}{r} 0 \\ 6 \overline{) 12} \\ \underline{-12} \\ \hline r2 \end{array}$
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$b_{13} \times 0 = 0_{13}$
 $b_{13} \times 1 = b_{13}$
 ~~$b_{13} \times 2 = AC$~~
 $b_{13} \times 3 = 15$
 $b_{13} \times 4 = 1B$

2. ~~Ex~~ Add

$$\begin{array}{r}
 a. + 5_{10} = + 101 \\
 17_{10} = 10001 \\
 \boxed{10110} = 32 \\
 \\
 b. = 75_{10} = 1001011 \\
 54_{10} = 0110110 \\
 \boxed{10000001} = 129
 \end{array}$$

Mul	Highly
510	00101
170	<u>10001</u>
	00101
	00000
	00000
	00000
	00101
85 =	<u>1010101</u>
	1001011
	1000000
	11001011
	1001011
	0000000
	1001011
	1000010

$$\begin{array}{r}
 \text{Add} \\
 \text{C. } 44_{10} = 101100 \\
 + 36_{10} = \underline{100100} \\
 \hline
 80 = 1010000
 \end{array}$$

$$\begin{array}{r} \underline{\text{Sub}} \\ -1 \\ \hline -1 \\ \hline 8 = 001000 \end{array}$$

101100
100100
000000
000000
1101100
000000
000000
101100
1000110000

mult

11000110000

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