

1. (a) $1, 2, 3, 10_4, 11_4, 12_4, 13_4, 20_4, 21_4, 22_4, 23_4, 30_4, 31_4, 32_4, 33_4, 100_4, 101_4, 102_4, 103_4, 110_4$
 - (b) $1, 2, 3, 4, 5, 6, 10_7, 11_7, 12_7, 13_7, 14_7, 15_7, 16_7, 20_7, 21_7, 22_7, 23_7, 24_7, 25_7, 26_7$
 - (c) $1, 10_2, 11_2, 100_2, 101_2, 110_2, 111_2, 1000_2, 1001_2, 1010_2, 1011_2, 1100_2, 1101_2, 1110_2, 1111_2, 10000_2, 10001_2, 10010_2, 10011_2, 10100_2$
 - (d) $8, 9, A, B, C, D, E, F, 10_{16}, 11_{16}, 12_{16}, 13_{16}, 14_{16}, 15_{16}, 16_{16}, 17_{16}, 18_{16}, 19_{16}, 1A_{16}, 1B_{16}, 1C_{16}, 1D_{16}, 1E_{16}, 1F_{16}, 20_{16}, 21_{16}$
2. (a) $213_6 = 3 \cdot 1 + 1 \cdot 6 + 2 \cdot 36 = 81$
 - (b) $10200_3 = 0 \cdot 1 + 0 \cdot 3 + 2 \cdot 9 + 0 \cdot 27 + 1 \cdot 81 = 99$
 - (c) $11101_2 = 1 \cdot 1 + 0 \cdot 2 + 1 \cdot 4 + 1 \cdot 8 + 1 \cdot 16 = 29$
 - (d) $AC_{16} = 12 \cdot 1 + 10 \cdot 16 = 172$
 - (e) $210_5 = 0 \cdot 1 + 1 \cdot 5 + 2 \cdot 25 = 55$
 - (f) $230_4 = 0 \cdot 1 + 3 \cdot 4 + 2 \cdot 16 = 44$
3. (a)

59	$:$	5	$=$	11	Rest	4
11	$:$	5	$=$	2	Rest	1
2	$:$	5	$=$	0	Rest	2

$59 = 214_5$
 - (b)

27	$:$	2	$=$	13	Rest	1
13	$:$	2	$=$	6	Rest	1
6	$:$	2	$=$	3	Rest	0
3	$:$	2	$=$	1	Rest	1
1	$:$	2	$=$	0	Rest	1

$27 = 11011_2$
 - (c)

76	$:$	16	$=$	4	Rest	C
4	$:$	16	$=$	0	Rest	4

$76 = 4C_{16}$
 - (d)

999	$:$	9	$=$	111	Rest	0
111	$:$	9	$=$	12	Rest	3
12	$:$	9	$=$	1	Rest	3
1	$:$	9	$=$	0	Rest	1

$999 = 1330_9$