Tema 2 (3.9) a) $1001_{(2)} = 1\cdot 2^0 + 1\cdot 2^3 = 17_{(10)}$

b) $3A_{(16)} = 10\cdot 16^0 + 3\cdot 16^1 = 58_{(10)}$

c) $122_{(6)} = 2\cdot 6^0 + 2\cdot 6^1 + 1\cdot 6^2 = 50_{(10)} = 302_{(4)}$

50 | 4			
48 | 12	4		
=2 | 12	3	4	
	=0 0	0	4
		3	0

d) $31_{(8)} - 14_{(8)} = 15_{(8)}$

(4.9.) $29^{89} \bmod 97 \equiv 29\cdot 29^{2\cdot 44} \equiv 29\cdot(29^2)^{44} \equiv 29\cdot(65^2)^{22} \equiv 29\cdot(54^2)^{11} \equiv$

$\equiv 29\cdot 6\cdot(6^2)^5 \equiv 29\cdot 6\cdot 36^5 \equiv 77\cdot 36^5 \equiv 77\cdot 36\cdot(36^2)^2 \equiv 56\cdot 35^2 \equiv$

$\equiv 56\cdot 61 \equiv 21 \bmod 97$

(3.23) a) $1011_{(2)} = 1\cdot 2^0 + 1\cdot 2 + 1\cdot 2^3 = 11_{(10)}$

b) $2B_{(16)} = 11\cdot 16^0 + 2\cdot 16 = 43_{(10)}$

c) $343_{(5)} = 3\cdot 5^0 + 4\cdot 5 + 3\cdot 5^2 = 3 + 20 + 75 = 98_{(10)} = 1202_{(4)}$

98 | 4			
96 | 24	4		
=2 | 24	6	4	
	=0 4	1	4
		2	0

d) $16_{(8)} - 5_{(8)} = 11_{(8)} = 81_{(10)}$

(4.23) $89^{163} \pmod{167} = 89\cdot(89^2)^{81} = 89\cdot 72\,(72^2)^{40} = 62\cdot(7^2)^{20} = 62\cdot(49^2)^{10} =$

$= 62\cdot 63\,(63^2)^4 \quad 62\cdot(63^2)^5 = 62\cdot 128\cdot(128^2)^2 = 62\cdot 128\cdot 18^2 = 62\cdot 128\cdot 157 =$

$= 87\cdot 157 = 132 \bmod 167$