

Ficha 1

Grupo 1

1. a) 337

$$337 \bmod 2 = \underline{1} \quad 337/2 = 168$$

$$168 \bmod 2 = \underline{0} \quad 168/2 = 84$$

$$84 \bmod 2 = \underline{0} \quad 84/2 = 42$$

$$42 \bmod 2 = \underline{0} \quad 42/2 = 21$$

$$21 \bmod 2 = \underline{1} \quad 21/2 = 10$$

$$10 \bmod 2 = \underline{0} \quad 10/2 = 5$$

$$5 \bmod 2 = \underline{1} \quad 5/2 = 2$$

$$2 \bmod 2 = \underline{0}$$

$$2/2 = \underline{1}$$

$$\text{resposta} = \underline{\underline{101010001}}$$

b) 627

$$627 \bmod 2 = \underline{1} \quad 627/2 = 313$$

$$313 \bmod 2 = \underline{1} \quad 313/2 = 156$$

$$156 \bmod 2 = \underline{0} \quad 156/2 = 78$$

$$78 \bmod 2 = \underline{0} \quad 78/2 = 39$$

$$39 \bmod 2 = \underline{1} \quad 39/2 = 19$$

$$19 \bmod 2 = \underline{1} \quad 19/2 = 9$$

$$9 \bmod 2 = \underline{1} \quad 9/2 = 4$$

$$4 \bmod 2 = \underline{0} \quad 4/2 = 2$$

$$2 \bmod 2 = \underline{0}$$

$$2/2 = \underline{1}$$

$$\text{Resposta} = 1001110011$$

c) 33

$$33 \bmod 2 = \underline{1} \quad 33/2 = 16$$

$$16 \bmod 2 = \underline{0} \quad 16/2 = 8$$

$$8 \bmod 2 = \underline{0} \quad 8/2 = 4$$

$$4 \bmod 2 = \underline{0} \quad 4/2 = 2$$

$$2 \bmod 2 = \underline{0}$$

$$2/2 = \underline{1}$$

$$\text{Resposta} = 100001$$

d) 1459

$$1459 \bmod 2 = \underline{1} \quad 1459/2 = 729$$

$$729 \bmod 2 = \underline{1} \quad 729/2 = 364$$

$$364 \bmod 2 = \underline{0} \quad 364/2 = 182$$

$$182 \bmod 2 = \underline{0} \quad 182/2 = 91$$

$$91 \bmod 2 = \underline{1} \quad 91/2 = 45$$

$$45 \bmod 2 = \underline{1} \quad 45/2 = 22$$

$$22 \bmod 2 = \underline{0} \quad 22/2 = 11$$

$$11 \bmod 2 = \underline{1} \quad 11/2 = 5$$

$$5 \bmod 2 = \underline{1} \quad 5/2 = 2$$

$$2 \bmod 2 = \underline{0}$$

$$2/2 = \underline{1}$$

Resposta = 10110110011

2. a) 0111 0000 1110

$$2^1 + 2^2 + 2^3 + 2^8 + 2^9 + 2^{10} =$$

b) 00 1111 1100 1100 0011

$$2^0 + 2^1 + 2^6 + 2^7 + 2^{10} + 2^{11} + 2^{12} + 2^{13} + 2^{14} + 2^{15} =$$

3. a) 347

$$347 \bmod 16 = \underline{11} = \underline{B} \quad 347/16 = 21$$

$$21 \bmod 16 = \underline{5}$$

$$21/16 = \underline{1}$$

Resposta = 15B

b) 2345

$$2345 \bmod 16 = \underline{9} \quad 2345/16 = 146$$

$$146 \bmod 16 = \underline{2} \quad 146/16 = 9$$

$$9 \bmod 16 = \underline{9}$$

$$9/16 = 0$$

Resposta = 929

4. a) 3ABE

$$3 = 0011$$

$$A = 1010$$

$$B = 1011$$

$$E = 1110$$

Resposta = 0011101010111110

b) 8BAFC

$$8 = 1000$$

$$B = 1011$$

$$A = 1010$$

$$F = 1111$$

$$C = 1100$$

Resposta = 1000101110101111100

5. a) 32AB

$$\begin{aligned}
 & B * 16^0 + A * 16^1 + 2 * 16^2 + 3 * 16^3 \\
 & = 11 * 1 + 10 * 16 + 2 * 256 + 3 * 4096 \\
 & = 12971
 \end{aligned}$$

b) ABC4F

$$\begin{aligned}
 & F * 16^0 + 4 * 16^1 + C * 16^2 + B * 16^3 + A * 16^4 \\
 & = 15 * 1 + 4 * 16 + 12 * 256 + 11 * 4096 + 10 * 65536 \\
 & = 703567
 \end{aligned}$$

6. a) 00111001111110000111

0011 1001 1111 1000 0111

0011 = 3

1001 = 9

1111 = F

1000 = 8

0111 = 7

Resposta = 39F87

b) 00011111111111100000111110011

00 0111 1111 1111 1100 0001 1111 0011

0111 = 7

1111 = F

1111 = F

1100 = C

0001 = 1

1111 = F

0011 = 3

Resposta = 7FFC1F3

Grupo 2

a) 000111011 + 00111

0	0	0	1	1	1	0	1	1
				0	0	1	1	1
0	0	1	0	0	0	0	1	0

b) 00111110001111 + 000101111

0	0	1	1	1	1	1	0	0	0	1	1	1	1
					0	0	0	1	0	1	1	1	1
0	0	1	1	1	1	1	0	1	1	1	1	1	0

c) 03ABCD + 0023AB

0	3	A	B	C	D
0	0	2	3	A	B
	3	C	F	7	8

d) 048ABC + 035BEF

0	4	8	A	B	C
0	3	5	B	E	F
	7	E	6	A	B