

OPERACIONES ARITMÉTICAS

a) Calcule los resultados y luego halle los complementos restringidos y auténticos.





$$2202_{3} + 1000_{3}$$

$$2022_3 + 1020_3$$

$$1022_3 + 2200_3$$

$$1002_3 + 1000_3$$

$$2011_3 + 2112_3$$

$$1220_3 \\ +\ 2102_3$$

$$2111_3 + 2000_3$$

$$2120_3 + 2212_3$$

$$+ 1111_3 + 1010_3$$

$$\begin{array}{c} 1121_{3} \\ +\ 1112_{3} \end{array}$$

$$2202_3 + 1222_3$$

$$2200_3 + 1001_3$$

$$1120_3 + 1211_3$$

$$1020_3 + 2121_3$$

$$2110_3 + 2102_3$$

$$+\ 2002_3$$

$$\begin{array}{l} 2020_{3} \\ +\ 1200_{3} \end{array}$$

$$1220_3 \\ +\ 2011_3$$

$$\begin{array}{l} 2212_{3} \\ +\ 2221_{3} \end{array}$$

$$2211_3 + 2122_3$$



$$1021_4 \\ +\ 3332_4$$

$$\begin{array}{r} 3111_4 \\ + \ 1201_4 \end{array}$$

$$3320_4 + 3022_4$$

$$1033_4 + 3233_4$$

$$3332_4 + 2320_4$$

$$1211_4 + 3200_4$$

$$2103_4 + 2320_4$$

$$2222_4 + 1033_4$$

$$\begin{array}{r} 3323_4 \\ +\ 2121_4 \end{array}$$

$$^{1313_4}_{+\ 1202_4}$$

$$2221_4 + 2303_4$$

$$2031_4 + 3333_4$$

$$3232_4 \\ + 1012_4$$

$$3211_4 + 3201_4$$

$$3213_4 + 1100_4$$

$$3331_4 + 3312_4$$

$$1211_4 + 2132_4$$

$$1312_4 \\ +\ 1312_4$$

$$1220_4 \\ +\ 3300_4$$

$$1030_4 + 1001_4$$



$$\begin{array}{r} 1300_5 \\ +\ 2002_5 \end{array}$$

$$3133_5 \\ +\ 2340_5$$

$$2213_5 + 3322_5$$

$$2243_5 + 4104_5$$

$$2330_5 + 1314_5$$

$$\begin{array}{l} 2311_5 \\ +\ 1301_5 \end{array}$$

$$2410_5 + 4410_5$$

$$3222_5 + 3032_5$$

$$3142_5 + 1320_5$$

$$^{2003_5}_{+\ 4421_5}$$

$$\begin{array}{l} 2112_5 \\ +\ 3131_5 \end{array}$$

$$3240_5 + 3130_5$$

$$\begin{array}{l} 4221_5 \\ +\ 4022_5 \end{array}$$

$$\begin{array}{l} 3323_5 \\ +\ 2402_5 \end{array}$$

$$1431_5 + 1244_5$$

$$2222_5 + 3134_5$$

$$\begin{array}{l} 2403_5 \\ +\ 4440_5 \end{array}$$

$$3132_5 + 1241_5$$

$$2133_5 + 1431_5$$

$$1421_5 + 3422_5$$



$$^{4202_6}_{+\ 4005_6}$$

$$1540_6 + 2223_6$$

$$4513_6 + 5430_6$$

$$2155_6 + 1352_6$$

$$\begin{array}{r} 2533_6 \\ +\ 4214_6 \end{array}$$

$$1311_6 \\ +\ 3135_6$$

$$\begin{array}{l} 3010_6 \\ +\ 1334_6 \end{array}$$

$$4244_6 + 2451_6$$

$$5050_6 \\ +\ 2402_6$$

$$2435_6 + 2000_6$$

$$\begin{array}{l} 1013_6 \\ +\ 1450_6 \end{array}$$

$$4133_6 + 2351_6$$

$$4152_6 + 5240_6$$

$$4205_6 + 2400_6$$

$$4333_6 + 3332_6$$

$$5033_6 + 4041_6$$

$$1303_6 + 2223_6$$

$$4142_6 + 5242_6$$



$$4030_8 \\ + 7454_8$$

$$\begin{array}{l} 2545_8 \\ +\ 6000_8 \end{array}$$

$$1227_8 \\ +\ 4736_8$$

$$4542_8$$
 + 3020_8

$$1016_8 \\ + 6550_8$$

$$7064_8 \\ +\ 1455_8$$

$$4631_8 + 4175_8$$

$$6301_8 + 2360_8$$

$$^{1545_8}_{+\ 7725_8}$$

$$4640_8 \\ +\ 5405_8$$

$$1266_8 \\ +\ 2502_8$$

$$2254_8 + 4340_8$$

$$6451_8 \\ + 3675_8$$

$$^{4104_8}_{+\ 3123_8}$$

$$5173_8 + 2655_8$$

$$5735_8 + 2100_8$$

$$2240_8 + 3206_8$$

$$4171_8 + 7212_8$$

$$4330_8 + 7310_8$$







$$10212_3$$
 -1021_3

$$11222_3$$
 -2212_3

$$11122_3$$
 -2122_3

$$11121_3$$
 -2020_3

$$11002_3$$
 -2212_3

$$11000_3$$
 $- 1210_3$

$$10020_3$$
 -1012_3

$$10210_3 \\ - 2120_3$$

$$\begin{array}{r} 12001_3 \\ -\ 2012_3 \end{array}$$

$$11102_3 - 1122_3$$

$$11011_3$$
 $- 1211_3$

$$10021_3$$
 -2000_3

$$10012_3$$
 -1021_3

$$11102_3$$
 -2220_3

$$\frac{10002_3}{-2000_3}$$

$$10002_3$$
 -1220_3

$$10101_3$$
 -1010_3

$$12002_3$$
 -2221_3

$$\frac{10202_3}{-\ 1220_3}$$

$$10121_3$$
 -1022_3



$$3112_4$$
 -2002_4

$$12312_4 \\ -3000_4$$

$$12220_4$$
 -3112_4

$$12312_4$$
 -3322_4

$$3033_4$$
 -2033_4

$$11102_4$$
 -2130_4

$$11232_4$$
 -3213_4

$$\begin{array}{r} 10220_4 \\ -\ 1321_4 \end{array}$$

$$11102_4$$
 -3223_4

$$11000_4 \\ - 1231_4$$

$$10312_4$$
 -2211_4

$$10122_4$$
 -3122_4

$$12013_4$$
 -2211_4

$$11122_4$$
 -3210_4

$$10302_4$$
 -1202_4

$$10202_4$$
 -3120_4

$$\begin{array}{r} 2032_4 \\ -\ 1012_4 \end{array}$$

$$10112_4 \\ - 2130_4$$



$$3031_5$$
 -1404_5

$$11030_5 - 3332_5$$

$$12202_5 - 4312_5$$

$$2110_5$$
 -1033_5

$$12020_5 \\ - 3444_5$$

$$3234_5$$
 -2210_5

$$14001_5$$
 -4031_5

$$\begin{array}{r} 4000_5 \\ -\ 1442_5 \end{array}$$

$$12020_5$$
 -3224_5

$$10213_5$$
 -2114_5

$$\frac{11103_5}{-2043_5}$$

$$4034_5$$
 -2323_5

$$11033_5$$
 -4112_5

$$11344_5 - 4101_5$$

$$11421_5$$
 -2123_5

$$\begin{array}{r} 4101_5 \\ -\ 2420_5 \end{array}$$



$$10521_6 - 3251_6$$

$$11120_6$$
 -4051_6

$$11053_6$$
 -4113_6

$$10300_6$$
 -3502_6

$$10143_6$$
 -2115_6

$$\begin{array}{r} 15041_6 \\ -\ 5355_6 \end{array}$$

$$4412_6$$
 -2444_6

$$13244_6 - 4212_6$$

$$5322_6$$
 -2215_6

$$10253_6$$
 -4353_6

$$13151_6$$
 -4450_6



$$\begin{array}{c} 10432_8 \\ -\ 7330_8 \end{array}$$

$$\begin{array}{c} 12401_8 \\ -\ 7263_8 \end{array}$$

$$5276_8 \\ -2231_8$$

$$2434_8$$
 -1343_8

$$\begin{array}{c} 10202_8 \\ -\ 4064_8 \end{array}$$

$$7616_8$$
 $- 1013_8$

$$11176_8$$
 -5031_8

$$\begin{array}{r} 3052_8 \\ -\ 1635_8 \end{array}$$

$$\begin{array}{r} 10707_8 \\ -\ 2754_8 \end{array}$$

$$11044_8$$
 -3661_8

$$14013_8$$
 -5147_8

$$10732_8$$
 $- 1333_8$

$$3403_8$$
 -2316_8

$$5636_8$$
 -1163_8

$$\begin{array}{r} 12132_8 \\ -\ 7220_8 \end{array}$$

$$4165_8$$
 -1240_8



 $\begin{array}{c} {\tt E960_{16}} \\ {\tt - AADD_{16}} \end{array}$

 $\begin{array}{c} {\tt FD8A_{16}} \\ {\tt -1A5B_{16}} \end{array}$

 $\begin{array}{c} {\rm 16CB1_{16}} \\ {\rm -7C80_{16}} \end{array}$

 $7E3B_{16} - 1AC8_{16}$

 $\begin{array}{c} {\rm 198CB_{16}} \\ {\rm - \ E177_{16}} \end{array}$

4D12₁₆ - 29B0₁₆ 8381₁₆ - 6EC1₁₆ $\begin{array}{c} {\rm 10D88_{16}} \\ {\rm - \ DB7F_{16}} \end{array}$

 $\begin{array}{c} 98 \text{CF}_{16} \\ -\ 6399_{16} \end{array}$

108DA₁₆ - B42B₁₆ 1541C₁₆ - BC19₁₆

 $\begin{array}{c} {\tt EFC2_{16}} \\ {\tt - CB4A_{16}} \end{array}$

8BC1₁₆ - 1EF7₁₆ $99ED_{16} - 62AE_{16}$

FF7A₁₆
- 302B₁₆

BDA9₁₆
- 8527₁₆

 $14B3C_{16} - 823D_{16}$

 $\begin{array}{l} 85 FD_{16} \\ -\ 621 A_{16} \end{array}$

E8C2₁₆
- 67BF₁₆

 $1B9CC_{16} - D5C8_{16}$

 $1100_2 \times 110_2$

 $10101_2 \times 11_2$

 $11100_2 \\ \times \ 101_2$

10110₂ × 11₂





 $1010_2 \times 110_2$

 $11001_2 \times 111_2$

 $10101_2 \times 11_2$

 $4435_6 \times 43_6$

 $5304_{6} \times 41_{6}$

 $4025_6 \times 55_6$

 $5220_6 \times 23_6$

 $2453_{6} \times 54_{6}$

 $5424_{6} \times 14_{6}$

 $\begin{array}{c} 443_6 \\ \times 22_6 \end{array}$

 $4435_{6} \times 43_{6}$

 $5304_{6} \times 41_{6}$

 $4025_6 \times 55_6$

 $2151_{6} \times 14_{6}$

 $\begin{array}{r} 500_6 \\ \times 42_6 \end{array}$

5220₆ × 23₆ $2453_{6} \times 54_{6}$





 $101010_2|110_2 \qquad \qquad 1111000_2|100_2 \qquad \qquad 100011_2|111_2 \qquad \qquad 11110_2|10_2$

 $101010_2|11_2 \hspace{1.5cm} 1011100_2|100_2 \hspace{1.5cm} 1010100_2|100_2 \hspace{1.5cm} 110000_2|110_2 \hspace{1.5cm}$

 $1000010_2 | 110_2$ $110000_2 | 11_2$ $1111101_2 | 101_2$ $1111101_2 | 101_2$





 $184783_{16} | B5_{16} \hspace{1.5cm} A1E81E_{16} | F6_{16} \hspace{1.5cm} 563616_{16} | 7A_{16} \hspace{1.5cm} 4D3EF2_{16} | C9_{16}$

 $5F8604_{16}|83_{16}$ $3B2260_{16}|E0_{16}$ $39B660_{16}|50_{16}$ $3FD780_{16}|40_{16}$

 $471918_{16}|56_{16}$ $483120_{16}|DF_{16}$ $37A6DC_{16}|F6_{16}$ $C8A2E9_{16}|F5_{16}$

b) Restar utilizando complementos

- $(10100)_2 (101000)_2$ $(11111)_2 (111101)_2$
- $(100100)_2 (111100)_2$ $(110101)_2 (1010011)_2$
- (16B7E)₁₆ (CEDF)₁₆ (5B9E)₁₆ (733C)₁₆
- (11DAA)₁₆ (3737)₁₆
 (B6FE)₁₆ (7C35)₁₆
- (613)₈ (5051)₈ (12071)₈ (7031)₈
- (1036)₈ (3050)₈ (5575)₈ (3626)₈
- (5303)₆ (1045)₆ (5341)₆ (3340)₆
- (13553)₆ (5431)₆ (4145)₆ (7045)₆

- (1001110)₂ (111000)₂
- (11110)₂ (111111)₂
- (DDA9)₁₆ (6E98)₁₆
- (A2E1)₁₆ (13B7)₁₆
- (4411)₈ − (3626)₈
- (5705)₈ − (1363)₈
- (5302)₆ − (13053)₆
- \bullet (2434)₆ (5321)₆