



Nombre de la práctica	Multiplicacion de Binarios			No.	1
Asignatura:	Matemáticas Discretas	Carrera:	Ingeniería sistemas	en	Duración de la práctica (Hrs)
					5

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Grupo: 3102

I. Competencia(s) específica(s): capacidad de aplicar los conocimientos en la practica

II. Lugar de realización de la práctica (laboratorio, taller, aula u otro): Casa

III. Material empleado:

Hojas, bolígrafo, lápiz, goma, saca puntas

IV. Desarrollo de la práctica:





M. en C. Angel Enrique Vega
Matrícula: 202423367
Multiplicación de
binarios.

$$\begin{array}{r} 6885 \\ \times 53 \\ \hline 34425 \\ 110101100101 \\ 110101 \\ \hline 11010110010101001 \end{array}$$

$$\begin{array}{r} 2737 \\ \times 92 \\ \hline 1525484 \\ 101010110001 \\ 100001 \\ \hline 111000110100010001 \end{array}$$

$$\begin{array}{r} 8925 \\ \times 29 \\ \hline 238825 \\ 1000101101101 \\ 1000101101101 \\ \hline 1111011111001001 \end{array}$$

$$\begin{array}{r} 1061 \\ \times 65 \\ \hline 68965 \\ 10000100101 \\ 10000110101100101 \end{array}$$

$$\begin{array}{r} 773 \\ \times 25 \\ \hline 14325 \\ 11000000101 \\ 11000000101 \\ \hline 10010110111101 \end{array}$$

$$\begin{array}{r} 8261 \\ \times 4 \\ \hline 33044 \\ 10001000111001 \\ 10001000111001 \\ \hline 10011010000000001 \end{array}$$

$$\begin{array}{r} 4233 \\ \times 7 \\ \hline 410601 \\ 1000010001001 \\ 1000010001001 \\ \hline 111010000111101001 \end{array}$$

$$\begin{array}{r} 1717 \\ \times 92 \\ \hline 165494 \\ 11010110101 \\ 100001 \\ \hline 0101100010100101 \end{array}$$

$$\begin{array}{r} 1097 \\ \times 49 \\ \hline 53753 \\ 10001001001 \\ 10001001001 \\ \hline 110100011111001 \end{array}$$

$$\begin{array}{r} 5377 \\ \times 69 \\ \hline 371013 \\ 10101000000001 \\ 1000101 \\ \hline 1011010100101000101 \end{array}$$

$$\begin{array}{r} 7893 \\ \times 73 \\ \hline 576189 \\ 1111011010101 \\ 1001001 \\ \hline 1000110010101011101 \end{array}$$

$$\begin{array}{r} 4029 \\ \times 53 \\ \hline 21357 \\ 11110111101 \\ 110111 \\ \hline 1000000100011011 \end{array}$$



$$\begin{array}{r} 2493 \quad 10011011101 \\ \times 23 \quad 1010101 \\ \hline 211905 \quad 1010011011101 \\ 110011011101 \\ 10011011101 \\ 10011011101 \\ \hline 11001110001000001 \end{array}$$

$$\begin{array}{r} 8161 \quad 111111100001 \\ \times 5 \quad 101 \\ \hline 1111111100001 \\ 111111100001 \\ \hline 100111101100101 \end{array}$$

$$\begin{array}{r} 7645 \quad 1110111011101 \\ \times 29 \quad 11101 \\ \hline 1110111011101 \\ 1110111011101 \\ 1110111011101 \\ 1110111011101 \\ \hline 10010911101001001 \end{array}$$

$$\begin{array}{r} 8229 \quad 10000000100101 \\ \times 29 \quad 11101 \\ \hline 10000000100101 \\ 10000000100101 \\ 10000000100101 \\ 10000000100101 \\ \hline 111000010000110001 \end{array}$$

$$\begin{array}{r} 5237 \quad 1010001110101 \\ \times 93 \quad 1011101 \\ \hline 1010001110101 \\ 1010001110101 \\ 1010001110101 \\ 1010001110101 \\ \hline 101000111010100001 \end{array}$$

$$\begin{array}{r} 5179 \quad 1010000111011 \\ 61 \quad 111101 \\ \hline 1010000111011 \\ 1010000111011 \\ 1010000111011 \\ 1010000111011 \\ \hline 101000011101100000001 \end{array}$$

$$\begin{array}{r} 7085 \quad 1101110101101 \\ \times 89 \quad 10101001 \\ \hline 1101110101101 \\ 1101110101101 \\ 1101110101101 \\ 1101110101101 \\ \hline 1001101110000101001 \end{array}$$

$$\begin{array}{r} 6989 \quad 1101101001101 \\ \times 85 \quad 1010101 \\ \hline 1101101001101 \\ 1101101001101 \\ 1101101001101 \\ 1101101001101 \\ \hline 10001001000010010001 \end{array}$$

$$\begin{array}{r} 2369 \quad 1110011001001 \\ \times 93 \quad 1011101 \\ \hline 1110011001001 \\ 1110011001001 \\ 1110011001001 \\ 1110011001001 \\ \hline 1010011010100000101 \end{array}$$

$$\begin{array}{r} 3653 \quad 111001000101 \\ \times 13 \quad 1101 \\ \hline 111001000101 \\ 111001000101 \\ 111001000101 \\ \hline 10111001100000001 \end{array}$$

$$\begin{array}{r} 2795 \quad 1111001110001 \\ \times 13 \quad 1101 \\ \hline 1111001110001 \\ 1111001110001 \\ \hline 11000101110111101 \end{array}$$

$$\begin{array}{r} 3093 \quad 110000010101 \\ \times 16 \quad 10000 \\ \hline 110000010101 \\ \hline 11000001010100000 \end{array}$$

$$\begin{array}{r} 2825 \quad 101100001001 \\ \times 12 \quad 10001 \\ \hline 101100001001 \\ 101100001001 \\ \hline 1011000010010001 \end{array}$$



$$\begin{array}{r}
 10100011011101101001 \\
 3469 \quad 110110001101 \\
 \hline
 1 \quad 9 \quad 1 \quad 1001 \\
 \hline
 110110001101 \\
 100110001101 \\
 \hline
 1110011110101
 \end{array}$$



Handwritten binary arithmetic exercises on a grid background. The exercises are organized into three columns and multiple rows, each showing a multiplication or division problem in binary notation.

Column 1 (Left):

- 1401 1010111001
x 33 100001

111010111001
1010111001

101101001001001
- 604 1001100001
x 21 10101

1001100001
1001100001

1000111110101
- 109 1101101
x 21 10101

1101101
1101101

100011110001
- 802 11110101001
x 19 1111

11110101001
11110101001

111011010010101
- 14601 11110110001
x 13 10001

11110110001
11110110001

10000101000001
- 6321 1100010110001
x 8 1010001

1100010110001
1100010110001

100010110001
- 7429 1110100000101
x 05 1000001

1110100000101
1110100000101

11101011111000101
- 8181 111111110101
x 80 1011001

111111110101
111111110101

101100011000010101

Column 2 (Middle):

- 5361 101001110001
x 89 1011001

10101001110001
10101001110001

10101011110101101
- 4412 1101100000101
x 21 10101

11101100000101
11101100000101

10001101101101001
- 4933 100101001001
x 21 10101

1100101001001
1100101001001

11000101111101
- 3905 111101100001
x 33 10101

111101100001
111101100001

1100100001110101
- 8301 1000000010101
x 23 100101

1000000010101
1000000010101

100000110110101
- 8329 1000001000101
x 85 1010101

1000001000101
1000001000101

1000001000101
- 2469 1001101010101
x 41 10101

1001101010101
1001101010101

1001101010101
- 8509 1000000110101
x 17 1001

1000000110101
1000000110101

100000100110101

Column 3 (Right):

- 53 1011101
x 29 10101

1011101
1011101

11110100001
- 4073 11111111001
x 29 10111111001

11111111001
11111111001

110011010110101
- 2435 100110101001
x 29 111101

10100110101001
10100110101001

10001100000100101
- 2064 100000010001
x 8 1010101

100000010001
100000010001

100000010001
- 2549 100111110101
x 25 111101

10100111110101
10100111110101

1110111110101
- 1245 11011010001
x 25 1001

11011010001
11011010001

1010101010101001
- 6573 1100110101101
x 21 10101

1100110101101
1100110101101

1100110101101



$$\begin{array}{r}
 7349 \quad 1100011001101 \\
 \times 60 \quad \underline{1000101} \\
 1100011001101 \\
 1100011001101 \\
 110001101 \\
 100010001 \\
 \hline
 10101011101000001
 \end{array}$$

$$\begin{array}{r}
 2604 \quad 1110110110001 \\
 25 \quad \quad \quad \quad \quad \quad 11001 \\
 \hline
 \quad \quad \quad 1110110110001 \\
 \quad \quad \quad 1110110110001 \\
 \quad \quad \quad 1110110110001 \\
 \quad \quad \quad 1110110110001 \\
 \hline
 101110011001001001
 \end{array}$$

$$\begin{array}{r}
 227 \quad 1110000110001 \\
 \times 2 \quad \quad \quad 1100001 \\
 \hline
 454 \quad 11110000110001 \\
 \quad \quad 2220000110001 \\
 \hline
 908 \quad 1110000110001 \\
 \quad \quad 2220000110001 \\
 \quad \quad \quad 1100001 \\
 \hline
 1816 \quad 1010101011010010001
 \end{array}$$

$$\begin{array}{r}
 2485 \quad 100110110101 \\
 8 \quad 1 \quad 1010001 \\
 \hline
 11010011010101 \\
 100110110101 \\
 \hline
 100110110101 \\
 \hline
 11000100100100101
 \end{array}$$

[illegible]

$$\begin{array}{r} 1061 \quad 1100111101 \\ \times 81 \quad \times \quad 1010001 \\ \hline 1100111101 \\ 1100111101 \\ \hline 1000001101000101 \end{array}$$

$$\begin{array}{r}
 5265 \quad 10100010010001 \\
 \times \quad 44 \quad 100010010001 \\
 \hline
 2106001110011001 \\
 21060010010001 \\
 \hline
 10100010010001 \\
 10100010010001 \\
 \hline
 11010001110011001
 \end{array}$$

[illegible]

$$\begin{array}{r}
 993 \quad 1111100001 \\
 89 \quad \underline{1011001} \\
 1000111100001 \\
 10111000001 \\
 1111000001 \\
 \hline
 11010010011001
 \end{array}$$

$$\begin{array}{r} 513 \quad 10000000001 \\ 69 \quad \underline{100000001} \\ 1000000000001 \\ 1000000000001 \\ \underline{1000000000001} \\ 1000000000001 \end{array}$$

$$\begin{array}{r}
 4905 \quad 10010001100001 \\
 81 \quad 10100001 \\
 \hline
 1110010001100001 \\
 10010001100001 \\
 10010001100001 \\
 \hline
 1011100000101010110001
 \end{array}$$

2921 111101110001
334 110101
111101110001
10111100001
111101110001
111101110001
11001100111100101

3697 111001110001
81 1 1010001
1111100110001
11100110001
1100110001
100100100011000001

$$\begin{array}{r}
 2657 \quad 101001100001 \\
 4 \quad 101001 \\
 \hline
 101001100001 \\
 1101001100001001 \\
 101001100001 \\
 \hline
 11010100110001001
 \end{array}$$



Handwritten binary multiplication exercises on a grid background. The exercises are arranged in two columns and multiple rows, showing the step-by-step process of multiplying binary numbers.

Left Column Exercises:

- 7961 x 45
- 8193 x 17
- 1049 x 47
- 6449 x 49
- 2961 x 29
- 4201 x 17
- 3213 x 69

Right Column Exercises:

- 4185 x 41
- 638 x 49
- 1425 x 55
- 7621 x 89
- 6581 x 93
- 3985 x 73
- 5189 x 33

Each exercise shows the binary representation of the numbers and the resulting product, with intermediate steps and carry-over values indicated by horizontal lines and arrows.



242939521625	1001011110101001 = 1010101000001
5621x33=185553	1010111110101x100001=101101010100110001
7889x45=35505	1111011010001x10101=1010110101010111101
8609x33=283012	10000110100001x10001=10001010000110001001
4085x85=346225	11111110101x1010101=101010010001110001
5669x57=31723	1011000100101010101=1001100000011010101
4693x55=249881	10100101010101x110101=111101000000011001
5317x29=168693	1011010111001x11101=101001001011110101
1869x89=166941	11101001101010101=101000110000011101
4045x93=376185	11111001101010101=101101110101111001
4853x93=451249	100101110101010101=11011000101010001
1381x45=62145	10101100101x101101=111100101100001
5541x61=338181	101011010101x111101=10100101010000111101
8137x3=268521	11111100101010101=10000011000110101
5361x57=305577	1010011110001x111001=100101010011010101
6241x21=131061	1100001100001x10101=1111111111110101
5389x17=91613	1010100001101x10001=10110010101101101
7789x61=47529	111100110101010101=111010000000101101
369x77=28443	10110001x1001101=1101110001101
1989x65=129285	11111000101x1000001=11111100100000101
3292x57=216364	11101010101x111001=110100110100101101
1997x85=169745	11111001101x10101=101001001110011101
8041x21=168861	1111101101001x10101=10100100111011101
8397x53=455681	100001100101010101=110111101000000001
3865x13=50245	1111000110011101=1100010001000101
5789x83=48423	10110100111010101=11000000001110111
6257x85=531845	1100001110001x10101=100000111010110001



401x39=14839	110010001x10101=1110011110101
161x5=805	10100001x101=1100100101
2983x49=205665	101110101001x1000101=110010001101100001
7321x65=485865	1110101100001x100001=111011101011010001
33x89=2937	100001x1011001=101101111001
5837x73=425381	101101100101x1001001=110011111011010010
8301x69=572469	10000001101101x1000101=100010111010110001
6924x85=58945	1101100010001x1010101=100100000001000010
4921x52=280432	1001100111001x11101=1000010001101110101
3923x17=67581	11110000101x1001=1000011111101
6429x5=32145	110010001110101x101=11111011001001
5008x33=165145	10011100010101x10001=1010000101010101
5181x3=12193	101000111101x1001=10100111111011001
228x3=7425	1110001x10001=1110100001
141x65=9165	1000101x100001=1000111001101
7541x45=339345	1110101101010101x101=1010010110110010001
8025x25=200625	111101011001x1101=1100011111010001
4321x53=229493	100001110001x11101=100100010100111101
5221x57=297392	1010001100101x1101=100100010100111101
5505x21=116865	10100111101x10101=11100100010000001
7647x65=799005	1110111110101x100001=111100111010011101
7389x45=332505	11100110110101x1101=1001111110101101
3521x93=327513	11101100001010101=1001111110101101
1245x65=80925	10011011101x100001=100111000011101
2281x45=102645	10011101001010101=1100100011110101
3699x21=76629	11100100001x10101=10010101101010101
4865x25=121625	100110000001x1101=1000111101101
1577x93=146661	11000101001010101=10001111001110101
1013x81=82053	11111010101x101001=100100001000111101
7221x41=296061	111000110101x10101=100100001000111101
4381x25=109525	1000100011101x1001=1101010111010101
541x17=9197	1000011101x10001=1000111110101
8125x85=690625	11111011101x10101=1010100010011000001
345x89=32485	101101101x101001=100000100011101
1469x45=66105	1011011101x11101=100000100011101



V. Conclusiones: Las multiplicaciones de binario se responden con una simple operación en la cual se multiplica normal como cualquier otra operacion