

1. 2. Números primos

<i>NÚMERO</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>SALIDA</i>
0	0	0	0	0
1	0	0	1	0
2	0	1	0	1
3	0	1	1	1
4	1	0	0	0
5	1	0	1	1
6	1	1	0	0
7	1	1	1	1

$$\begin{aligned}
 &\Rightarrow \bar{A}\bar{B}\bar{C} + \bar{A}BC + A\bar{B}C + ABC \\
 &\Rightarrow \bar{A}(\bar{B}\bar{C} + BC) + A(\bar{B}C + BC) \\
 &\Rightarrow \bar{A}(B(\bar{C} + C)) + A(C(\bar{B} + B)) \\
 &\quad \therefore \bar{A}B + AC
 \end{aligned}$$

2. 3. Números pares

<i>NÚMERO</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>SALIDA</i>
0	0	0	0	1
1	0	0	1	0
2	0	1	0	1
3	0	1	1	0
4	1	0	0	1
5	1	0	1	0
6	1	1	0	1
7	1	1	1	0

$$\begin{aligned}
 &\Rightarrow \bar{A}\bar{B}\bar{C} + \bar{A}B\bar{C} + A\bar{B}\bar{C} + AB\bar{C} \\
 &\Rightarrow \bar{C}(\bar{A}\bar{B} + \bar{A}B + A\bar{B} + AB) \\
 &\Rightarrow \bar{C}(\bar{A}(\bar{B} + B) + A(\bar{B} + B)) \\
 &\quad \Rightarrow \bar{C}(\bar{A} + A) \\
 &\quad \therefore \bar{C}
 \end{aligned}$$

3. 4.B. Igualdad: X=Y

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>SALIDA</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>SALIDA</i>
1	1	1	1	1	1	1	0	1	1	1	1	1	0
1	1	1	1	1	0	0	0	1	1	1	1	0	0
1	1	1	1	0	1	0	0	1	1	1	0	1	0
1	1	1	1	0	0	0	0	1	1	1	1	0	0
1	1	1	0	1	1	0	0	1	1	0	1	1	1
1	1	1	0	1	0	0	0	1	1	0	1	0	0
1	1	1	0	0	1	0	0	1	1	0	0	1	0
1	1	1	0	0	0	0	0	1	1	0	0	0	0
1	1	0	1	1	1	0	0	1	0	1	1	1	0
1	1	0	1	1	0	1	0	1	0	1	1	0	0
1	1	0	1	0	1	0	0	1	0	1	0	1	0
1	1	0	1	0	0	0	0	1	0	1	0	0	0
1	1	0	0	1	1	0	0	1	0	0	1	1	0
1	1	0	0	1	0	0	0	1	0	0	1	0	1
1	1	0	0	0	1	0	0	1	0	0	0	1	0
1	1	0	0	0	0	0	0	1	0	0	0	0	0
1	0	1	1	1	1	0	0	0	1	1	1	1	0
1	0	1	1	1	0	0	0	0	1	1	1	0	0
1	0	1	1	0	1	1	0	0	1	1	0	1	0
1	0	1	1	0	0	0	0	0	1	1	0	0	0
1	0	1	0	1	1	0	0	0	1	0	1	1	0
1	0	1	0	1	0	0	0	0	1	0	1	0	0
1	0	1	0	0	1	0	0	0	1	0	0	1	1
1	0	1	0	0	0	0	0	0	1	0	0	0	0
1	0	0	1	1	1	0	0	0	0	1	1	1	0
1	0	0	1	1	0	0	0	0	0	1	1	0	0
1	0	0	1	0	1	0	0	0	0	1	0	1	0
1	0	0	1	0	0	1	0	0	0	1	0	0	0
1	0	0	0	1	1	0	0	0	0	0	1	1	0
1	0	0	0	1	0	0	0	0	0	0	1	0	0
1	0	0	0	0	1	0	0	0	0	0	0	1	0
1	0	0	0	0	0	0	0	0	0	0	0	0	1

$$\begin{aligned}
&\Rightarrow ABCDEF + AB\bar{C}DE\bar{F} + A\bar{B}CD\bar{E}F + A\bar{B}\bar{C}D\bar{E}\bar{F} + \bar{A}BC\bar{D}EF + \bar{A}\bar{B}\bar{C}\bar{D}\bar{E}\bar{F} + \bar{A}\bar{B}\bar{C}\bar{D}\bar{E}F \\
&\Rightarrow AD(BCEF + B\bar{C}\bar{E}\bar{F} + \bar{B}C\bar{E}F + \bar{B}\bar{C}\bar{E}\bar{F}) + \bar{A}\bar{D}(BCEF + B\bar{C}\bar{E}\bar{F} + \bar{B}C\bar{E}F + \bar{B}\bar{C}\bar{E}\bar{F}) \\
&\Rightarrow AD(B(CEF + \bar{C}\bar{E}\bar{F}) + \bar{B}(C\bar{E}F + \bar{C}\bar{E}\bar{F})) + \bar{A}\bar{D}(B(CEF + \bar{C}\bar{E}\bar{F}) + \bar{B}(C\bar{E}F + \bar{C}\bar{E}\bar{F})) \\
&\therefore AD(B(E(CF + \bar{C}\bar{F})) + \bar{B}(\bar{E}(CF + \bar{C}\bar{F}))) + \bar{A}\bar{D}(B(E(CF + \bar{C}\bar{F})) + \bar{B}(\bar{E}(CF + \bar{C}\bar{F})))
\end{aligned}$$

4. 4.A. MenorQue: $X < Y$

A	B	C	D	E	F	SALIDA	A	B	C	D	E	F	SALIDA
1	1	1	1	1	1	0	0	1	1	1	1	1	1
1	1	1	1	1	0	0	0	1	1	1	1	0	1
1	1	1	1	0	1	0	0	1	1	1	0	1	1
1	1	1	1	0	0	0	0	1	1	1	0	0	1
1	1	1	0	1	1	0	0	1	1	0	1	1	0
1	1	1	0	1	0	0	0	1	1	0	1	0	0
1	1	1	0	0	1	0	0	1	1	0	0	1	0
1	1	1	0	0	0	0	0	1	1	0	0	0	0
1	1	0	1	1	1	1	0	1	0	1	1	1	1
1	1	0	1	1	0	0	0	1	0	1	1	0	1
1	1	0	1	0	1	0	0	1	0	1	0	1	1
1	1	0	1	0	0	0	0	1	0	1	0	0	1
1	1	0	0	1	1	0	0	1	0	0	1	1	1
1	1	0	0	1	0	0	0	1	0	0	1	0	0
1	1	0	0	0	1	0	0	1	0	0	0	1	0
1	1	0	0	0	0	0	0	1	0	0	0	0	0
1	0	1	1	1	1	1	0	0	1	1	1	1	1
1	0	1	1	1	0	1	0	0	1	1	1	0	1
1	0	1	1	0	1	0	0	0	1	1	0	1	1
1	0	1	1	0	0	0	0	0	1	1	0	0	1
1	0	1	0	1	1	0	0	0	1	0	1	1	1
1	0	1	0	1	0	0	0	0	1	0	1	0	1
1	0	1	0	0	1	0	0	0	1	0	0	1	0
1	0	1	0	0	0	0	0	0	1	0	0	0	0
1	0	0	1	1	1	1	0	0	0	1	1	1	1
1	0	0	1	1	0	1	0	0	0	1	1	0	1
1	0	0	1	0	1	1	0	0	0	1	0	1	1
1	0	0	1	0	0	0	0	0	0	1	0	0	1
1	0	0	0	1	1	0	0	0	0	0	1	1	1
1	0	0	0	1	0	0	0	0	0	0	1	0	1
1	0	0	0	0	1	0	0	0	0	0	0	1	1
1	0	0	0	0	0	0	0	0	0	0	0	0	0

$$\begin{aligned}
&\Rightarrow ABC\bar{D}EF + A\bar{B}CDEF + A\bar{B}CDE\bar{F} + A\bar{B}\bar{C}DEF + A\bar{B}\bar{C}DE\bar{F} + A\bar{B}\bar{C}D\bar{E}F + \bar{A}BCDEF + \bar{A}BCD\bar{E}F + \\
&\quad \bar{A}BCD\bar{E}\bar{F} + \bar{A}\bar{B}C\bar{D}EF + \bar{A}\bar{B}CDE\bar{F} + \bar{A}\bar{B}\bar{C}D\bar{E}F + \bar{A}\bar{B}\bar{C}DEF + \bar{A}\bar{B}\bar{C}DE\bar{F} + \bar{A}\bar{B}\bar{C}D\bar{E}F + \bar{A}\bar{B}\bar{C}D\bar{E}\bar{F} \\
&\Rightarrow DEF(AB\bar{C} + A\bar{B}C + A\bar{B}\bar{C} + \bar{A}BC + \bar{A}\bar{B}C + \bar{A}\bar{B}\bar{C}) + DE\bar{F}(A\bar{B}C + A\bar{B}\bar{C} + \bar{A}BC + \bar{A}\bar{B}C + \bar{A}\bar{B}\bar{C} + \\
&\quad \bar{A}\bar{B}\bar{C}) + D\bar{E}F(A\bar{B}C + \bar{A}BC + \bar{A}\bar{B}C + \bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}\bar{C}) + D\bar{E}\bar{F}(A\bar{B}C + \bar{A}\bar{B}C + \bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}\bar{C}) + \bar{D}EF(\bar{A}BC + \\
&\quad \bar{A}\bar{B}C + \bar{A}\bar{B}\bar{C}) + \bar{D}\bar{E}F(\bar{A}BC + \bar{A}\bar{B}C) + \bar{D}\bar{E}\bar{F}(\bar{A}\bar{B}C) \\
&\Rightarrow DEF(A(\bar{B}C + \bar{B}C + \bar{B}\bar{C}) + \bar{A}(BC + \bar{B}C + \bar{B}C + \bar{B}\bar{C})) + DE\bar{F}(A(\bar{B}C + \bar{B}\bar{C} + \bar{A}(BC + \bar{B}C + \bar{B}C + \bar{B}\bar{C}))) + \\
&\quad D\bar{E}F(A\bar{B}\bar{C} + \bar{A}(BC + \bar{B}C + \bar{B}C + \bar{B}\bar{C})) + D\bar{E}\bar{F}(\bar{A}(BC + \bar{B}C + \bar{B}C + \bar{B}\bar{C})) + \bar{D}EF(\bar{A}(\bar{B}C + \bar{B}C + \bar{B}\bar{C})) + \\
&\quad \bar{D}\bar{E}\bar{F}(\bar{A}(\bar{B}C + \bar{B}\bar{C})) + \bar{D}\bar{E}\bar{F}(\bar{A}\bar{B}C) \\
&\therefore DEF(A(\bar{B}C + \bar{B}) + \bar{A}) + DE\bar{F}(A\bar{B} + \bar{A}) + D\bar{E}F(A\bar{B}\bar{C} + \bar{A}) + DE\bar{F}\bar{A} + \bar{D}EF(\bar{A}(\bar{C} + \bar{B}C)) + \bar{D}EF\bar{A}\bar{B} + \bar{D}\bar{E}F\bar{A}\bar{B}C
\end{aligned}$$