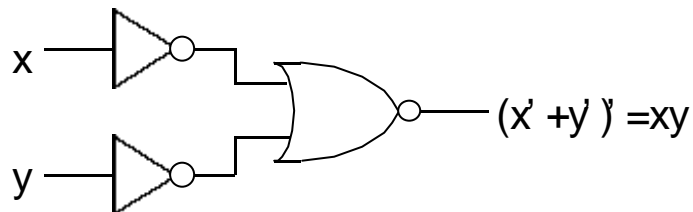
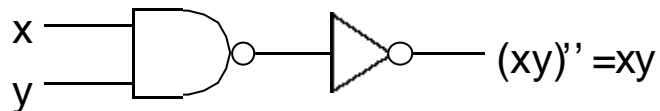


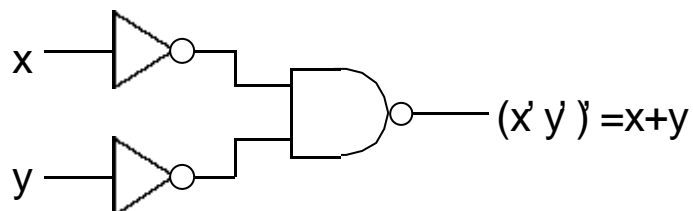
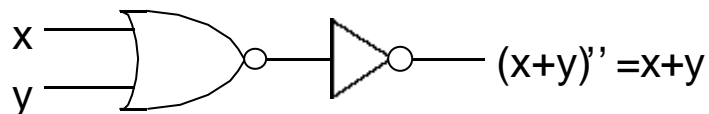
NAND NOR

- ◆ NAND NOR 가 ,
- ◆ Digital NAND/NOR/NOT
- ◆ NAND/NOR/NOT digital logic family universal gate

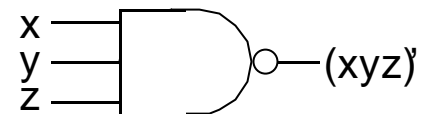
□ AND



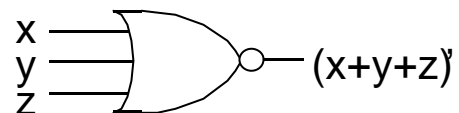
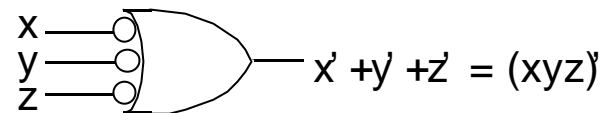
□ OR



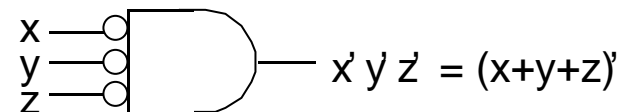
□ NAND NOR



|||



|||

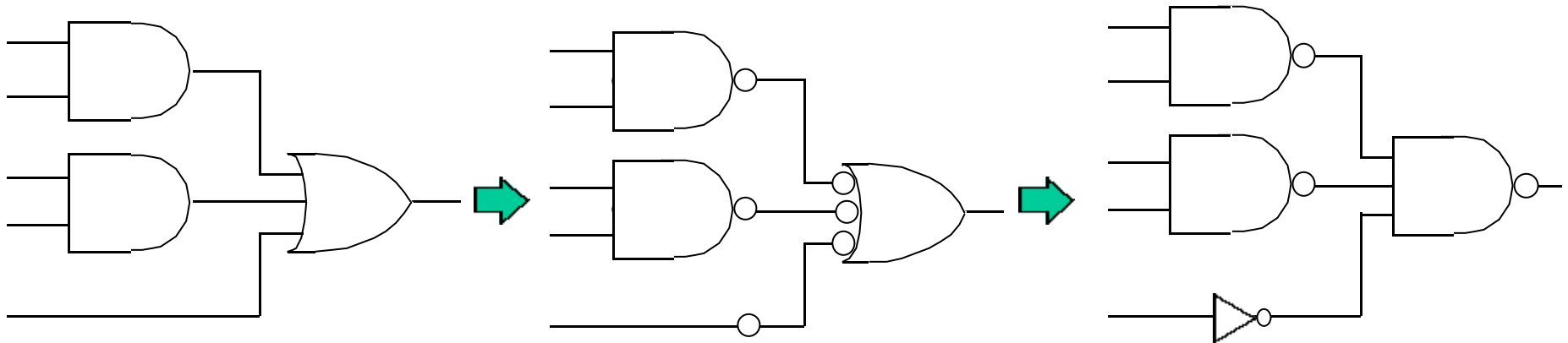


NAND

- [1]
 - [2] “1” f sum of product , f
 - [3] “0” f sum of product ,
- f NAND ,

NOT

(ex) [1] $f = AB + CD + E$



NAND

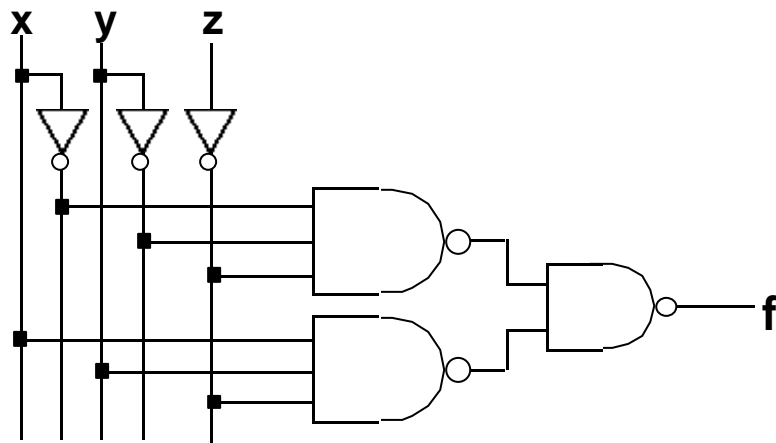
(ex) $f = (0,6)$

		yz			
x		00	01	11	10
0		1			
1					1

[2]

$$f = \underline{\underline{x'y'z}} + \underline{\underline{xyz'}} = \underline{\underline{x'y'z}} + \underline{\underline{xyz'}}$$

$$= \underline{\underline{x'y'z}} \cdot \underline{\underline{xyz'}}$$

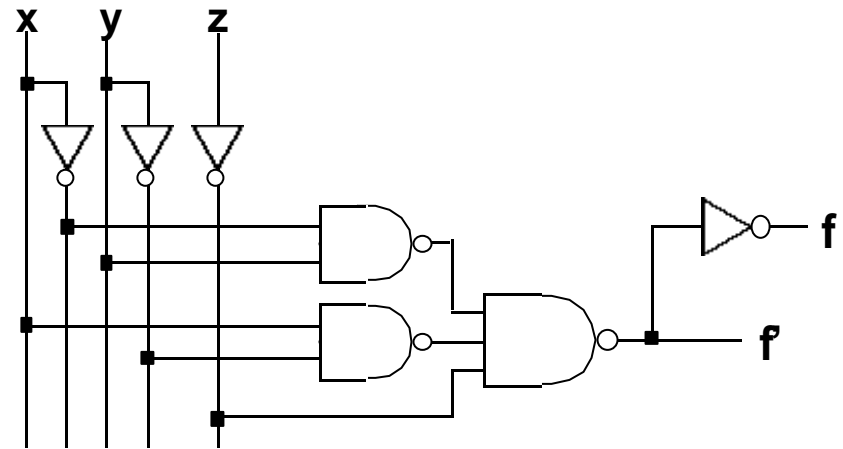


[3]

		yz			
x		00	01	11	10
0			0	0	0
1		0	0	0	

$$f = \underline{\underline{x'y}} + \underline{\underline{xy'}} + z = \underline{\underline{x'y}} + \underline{\underline{xy'}} + z$$

$$= \underline{\underline{x'y \cdot xy'}} \cdot z$$



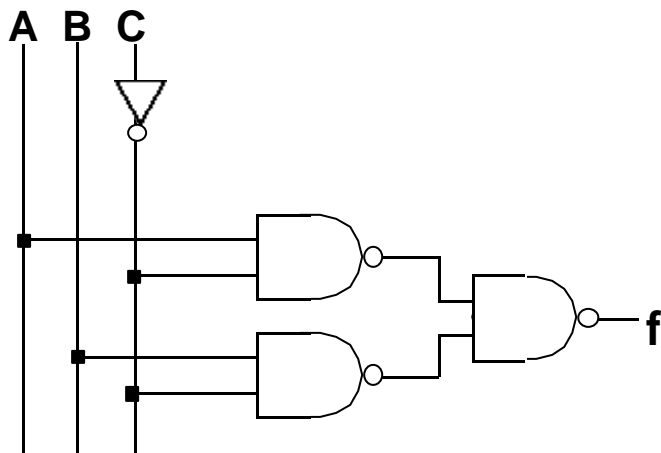
NAND

(ex) $f = (0,2,4)$

	BC			
A	00	01	11	10
0				1
1	1			1

[2]

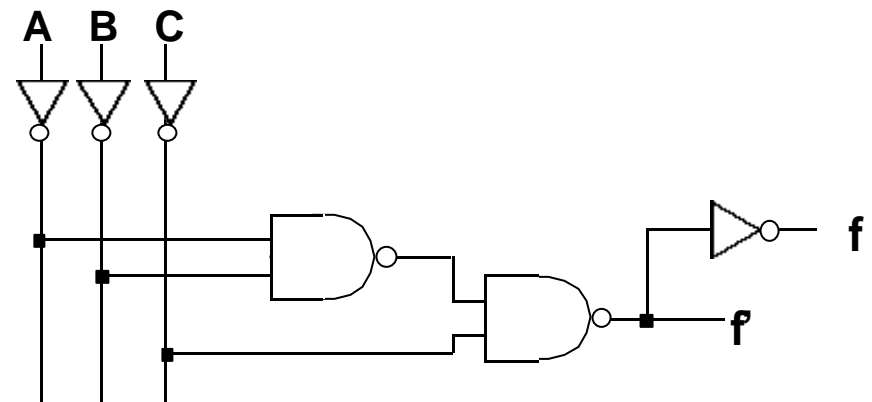
$$f = AC' + BC' = \overline{\overline{AC' + BC'}} \\ = \overline{AC' \cdot BC'}$$



[3]

	BC			
A	00	01	11	10
0	0	0	0	
1		0	0	

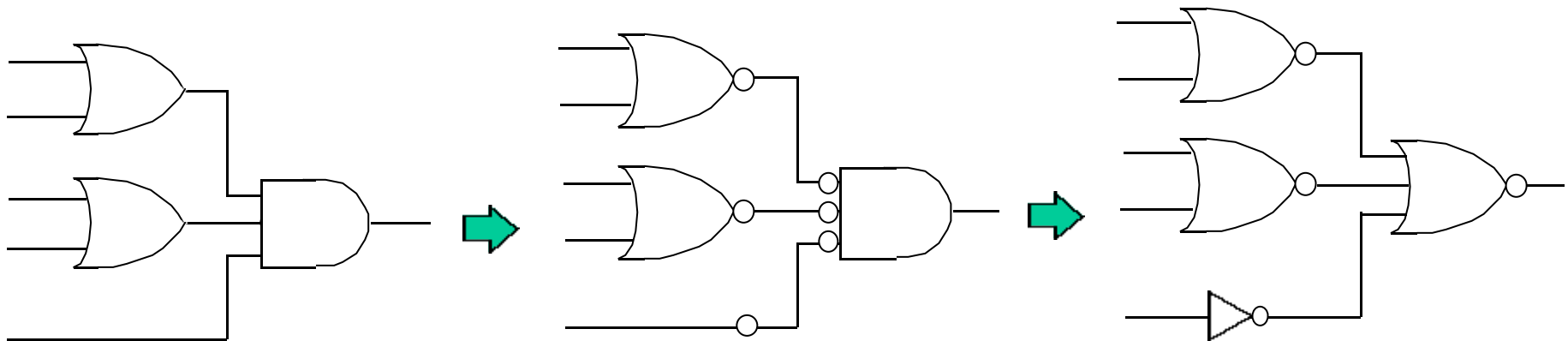
$$f' = C + A'B' = \overline{\overline{C + A'B'}} \\ = \overline{C' \cdot A'B'}$$



NOR

- [1]
 - [2] "0" f sum of product
 - f f , f
 - [3] "1" f sum of product ,
 - f NOR ,
- NOT

(ex) [1] $f = (A+B)(C+D)E$



NOR

(ex) $f = (0,6)$

		yz			
	x	00	01	11	10
0	1				
1					1

		yz			
	x	00	01	11	10
0		0	0	0	
1	0	0	0		

[2]

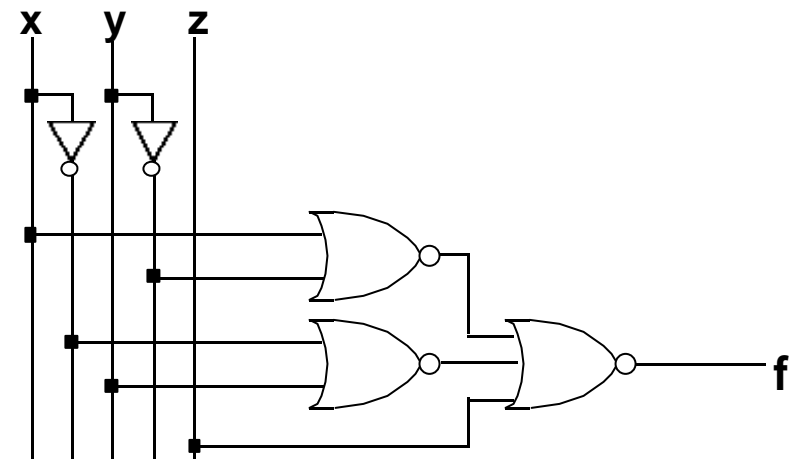
$$f = x'y + xy' + z$$

$$f = (f')' = \overline{x'y + xy' + z} = \overline{x'y} \cdot \overline{xy'} \cdot \overline{z}$$

$$= (x+y')(x'+y)z'$$

$$f = f' = \overline{(x+y')(x'+y)z'} = \overline{x+y'} + \overline{x'+y} + \overline{z'}$$

$$= x+y' + x'+y + z$$



NOR

(ex) $f = (0,6)$

		yz			
		00	01	11	10
x	0	1			
	1				1

[3]

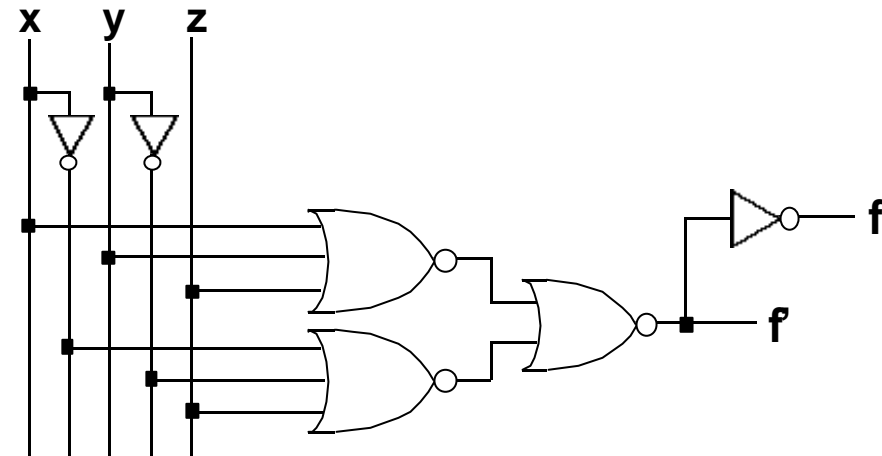
$$f = x' y' z' + xyz'$$

$$f = \overline{x' y' z' + xyz'} = \overline{x' y' z'} \cdot \overline{xyz'}$$

$$= \overline{(x+y+z)(x' + y' + z)}$$

$$= \overline{(x+y+z)} \overline{(x' + y' + z)}$$

$$= x+y+z + x' + y' + z$$



NAND NOR

					F
F	sum of product	"1"	NAND	2	
F	sum of product	"0"	NAND	3	
F	product of sum	"0"	NOR	2	
F	product of sum	"1"	NOR	3	