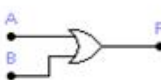
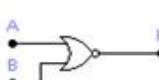
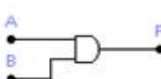
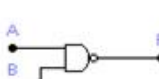
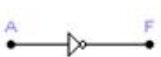


5. Oinarrizko zirkuitu digitalak: ate logikoak

Aurreko ataletan azaldu den moduan, ate logikoak oinarrizko zirkuitu digitalak dira, eta oinarrizko adierazpen logikoak garatzeko erabiltzen dira. Sei ate mota daude, eta bakoitzari dagokion grafikoa, egia-taula eta adierazpen logikoa 13. Taulan laburbiltzen dira.

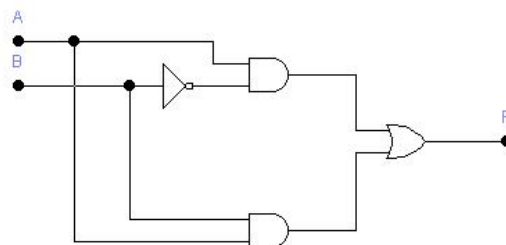
$F = A + B$ <table><tr><th>A</th><th>B</th><th>F</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>1</td></tr></table>  OR Atea	A	B	F	0	0	0	0	1	1	1	0	1	1	1	1	$F = \overline{A + B}$ <table><tr><th>A</th><th>B</th><th>F</th></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table>  NOR Atea	A	B	F	0	0	1	0	1	0	1	0	0	1	1	0
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1	0	0																													
1	1	0																													
$F = A \cdot B$ <table><tr><th>A</th><th>B</th><th>F</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>1</td></tr></table>  AND Atea	A	B	F	0	0	0	0	1	0	1	0	0	1	1	1	$F = \overline{A \cdot B}$ <table><tr><th>A</th><th>B</th><th>F</th></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table>  NAND Atea	A	B	F	0	0	1	0	1	1	1	0	1	1	1	0
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$F = \overline{A}$ <table><tr><th>A</th><th>F</th></tr><tr><td>0</td><td>1</td></tr><tr><td>1</td><td>0</td></tr></table>  NOT Atea	A	F	0	1	1	0	$F = A \oplus B = \overline{A}B + A\overline{B}$ <table><tr><th>A</th><th>B</th><th>F</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table>  EXOR Atea	A	B	F	0	0	0	0	1	1	1	0	1	1	1	0									
A	F																														
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A	B	F																													
0	0	0																													
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1	0	1																													
1	1	0																													

13. Taula

Ate horiek konbinatuz, funtzio logiko konplexuagoak gara daitezke. Demagun adierazpen hau:

$$F(B, A) = \overline{B}A + BA = \sum(1, 3)$$

Adierazpen horri dagokion zirkuitua 22. Irudian azter daiteke.



22. Irudia