Mentimeter

In1020 - Porter og funksjoner

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Mentimeter

Dagens forelesning

- → Ukesoppgaver
- → Porter (repetisjon)
- → Hvordan analysere kretser

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Hva er en port og hva er en funksjon?

bruk 1 min på å tenke selv på dette.

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Én port:

- → har alltid én logisk funksjon
- → kan ha matematisk funksjon

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Én funksjon:

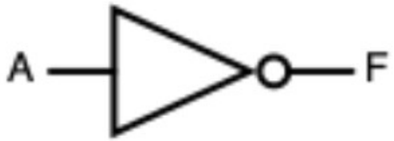
- kan være en logisk funksjon
- kan være en matematisk funksjon
- inneholder én eller flere porter

Mentimeter

INV - port

$F = A'$

A	F
0	1
1	0



OR - port

$F = A+B$

A	B	F
0	0	0
0	1	1
1	0	1
1	1	1



AND - port

$F = AB$

A	B	F
0	0	0
0	1	0
1	0	0
1	1	1



NOR - port

$F = (A + B)'$

A	B	F
0	0	1
0	1	0
1	0	0
1	1	0



NAND - port

$F = (AB)'$

A	B	F
0	0	1
0	1	1
1	0	1
1	1	0



XOR - port

$F = A \oplus B$

A	B	F
0	0	0
0	1	1
1	0	1
1	1	0



XNOR - port

$F = (A \oplus B)'$

A	B	F
0	0	1
0	1	0
1	0	0
1	1	1



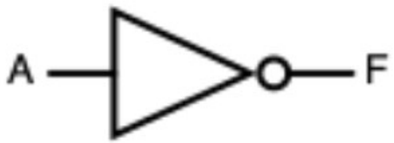
Alle logiske port-typer

Mentimeter

INV - port

$F = A'$

A	F
0	1
1	0



OR - port

$F = A+B$

A	B	F
0	0	0
0	1	1
1	0	1
1	1	1



AND - port

$F = AB$

A	B	F
0	0	0
0	1	0
1	0	0
1	1	1



NOR - port

$F = (A + B)'$

A	B	F
0	0	1
0	1	0
1	0	0
1	1	0



NAND - port

$F = (AB)'$

A	B	F
0	0	1
0	1	1
1	0	1
1	1	0



XOR - port

$F = A \oplus B$

A	B	F
0	0	0
0	1	1
1	0	1
1	1	0



XNOR - port

$F = (A \oplus B)'$

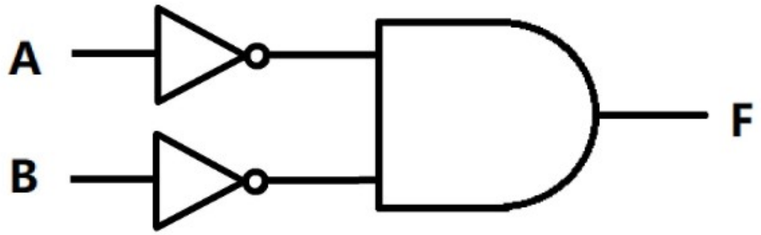
A	B	F
0	0	1
0	1	0
1	0	0
1	1	1



Porter som har en matematisk funksjon

Hva er funksjonen til denne kretsen

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7%
F = A + B

13%
F = AB

21%
F = (AB)

17%
F = A´ + B

41%
F = A´B´

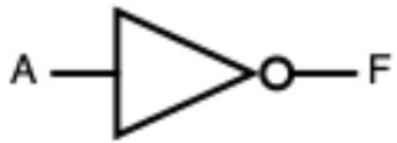
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Mentimeter

INV - port

$F = A'$

A	F
0	1
1	0



OR - port

$F = A+B$

A	B	F
0	0	0
0	1	1
1	0	1
1	1	1

AND - port

$F = AB$

A	B	F
0	0	0
0	1	0
1	0	0
1	1	1



NOR - port

$F = (A + B)'$

A	B	F
0	0	1
0	1	0
1	0	0
1	1	0

NAND - port

$F = (AB)'$

A	B	F
0	0	1
0	1	1
1	0	1
1	1	0

XOR - port

$F = A \oplus B$

A	B	F
0	0	0
0	1	1
1	0	1
1	1	0

XNOR - port

$F = (A \oplus B)'$

A	B	F
0	0	1
0	1	0
1	0	0
1	1	1

Relevante porter i denne sammenheng

Spørsmål

Mentimeter

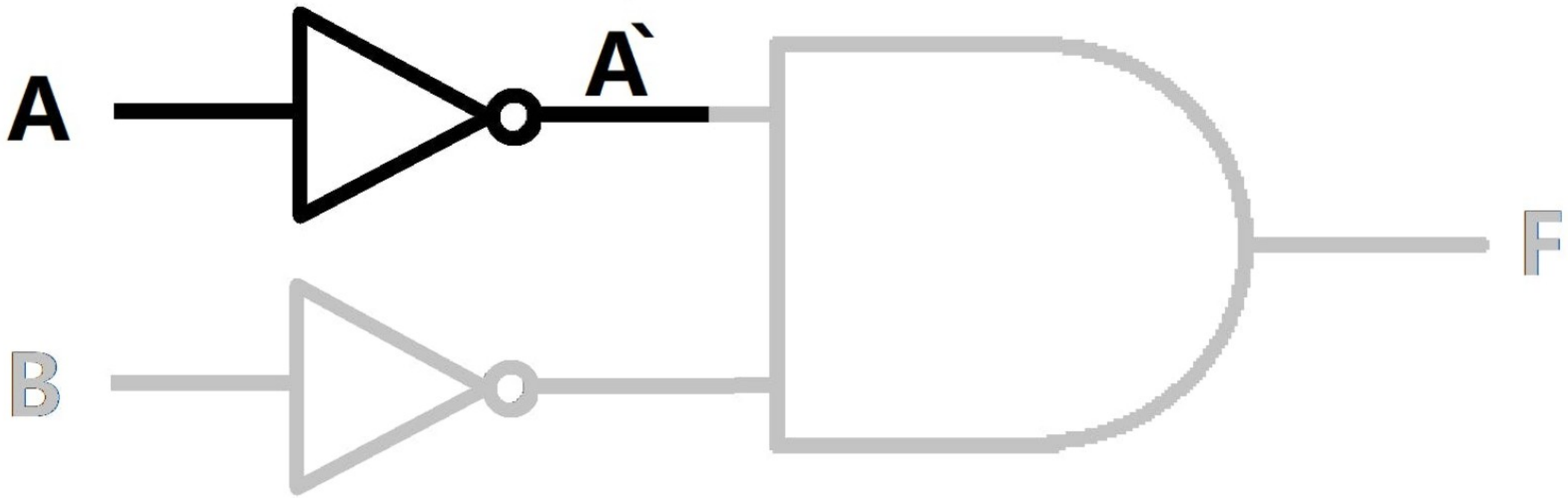
100 questions
208 upvotes

Mentimeter

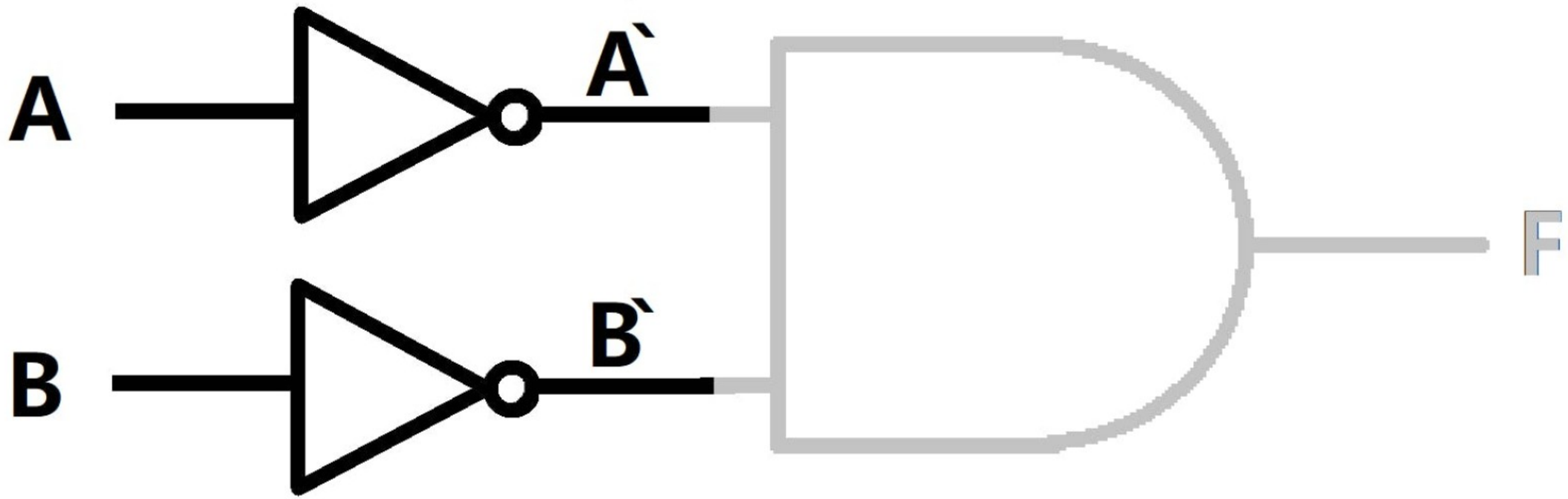
Kretsanalyse

- Fra venstre til høyre
- Fra inngang(er) til utgang(er)
- Fra høyre til venstre
- Fra utgang(er) til inngang(er)

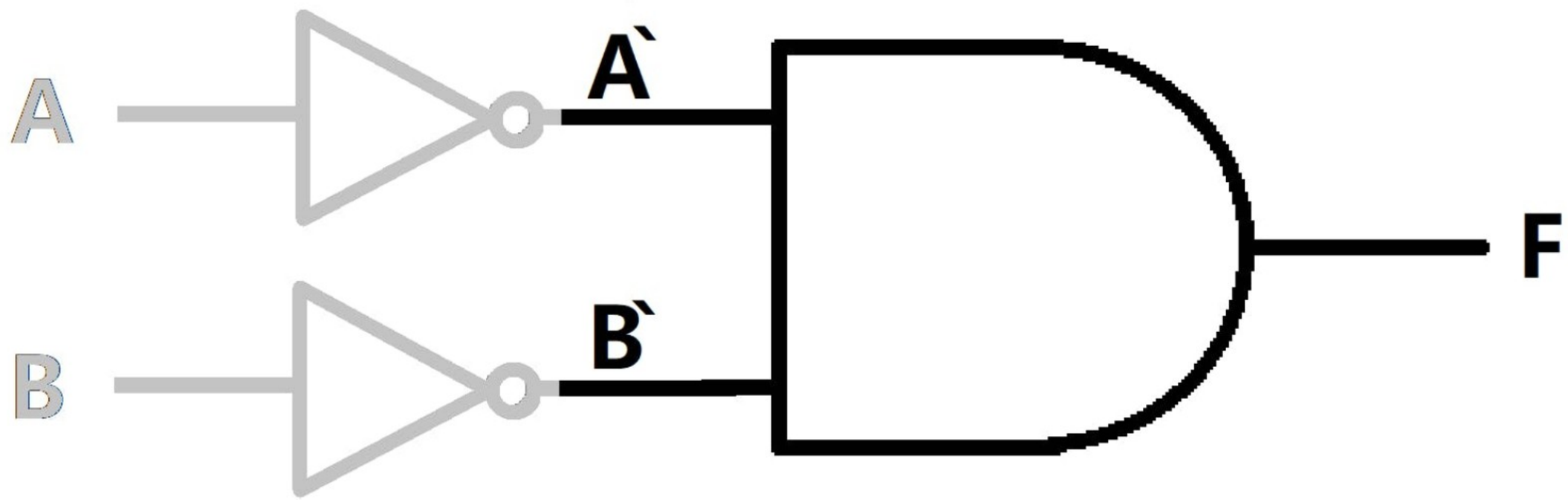
Mentimeter



Mentimeter



Mentimeter



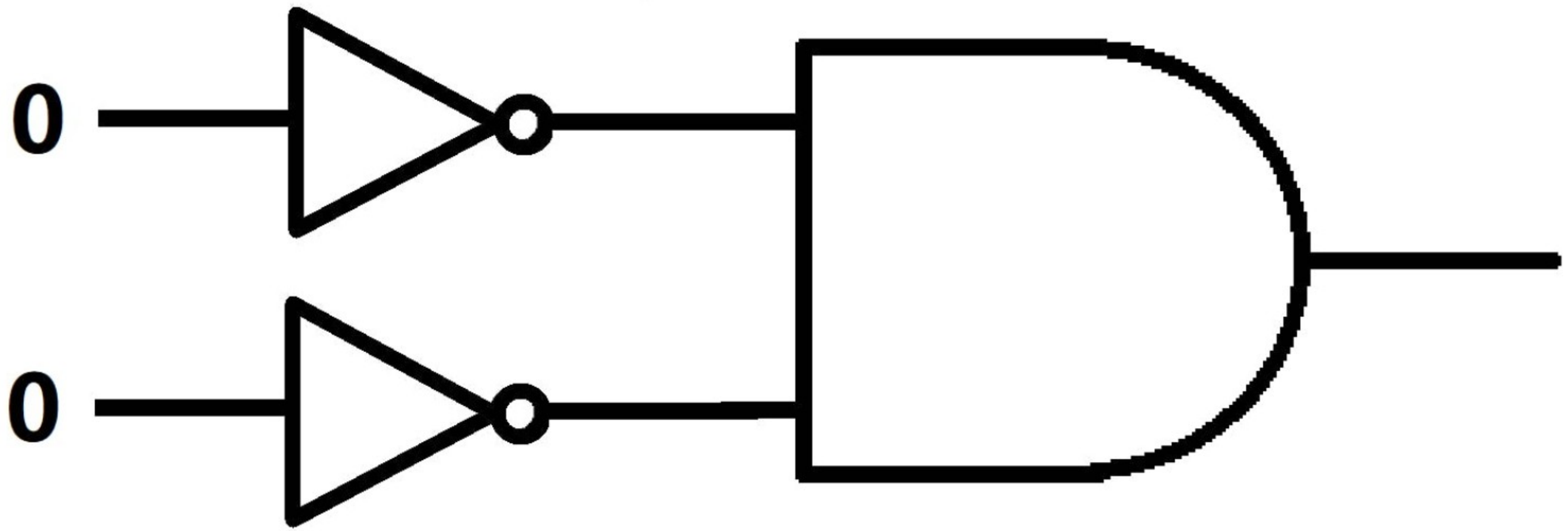
$F = A´B´$

Mentimeter

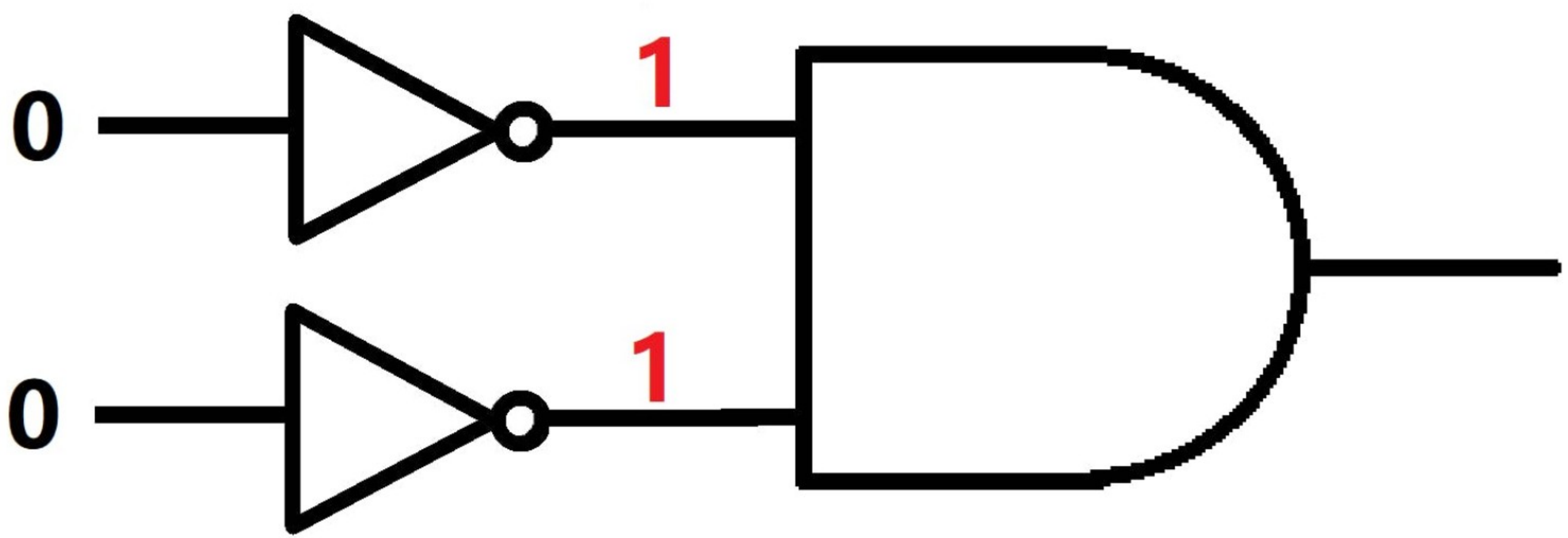
A	B	F
0	0	
0	1	
1	0	
1	1	

Sannhetsverditabellen for F?

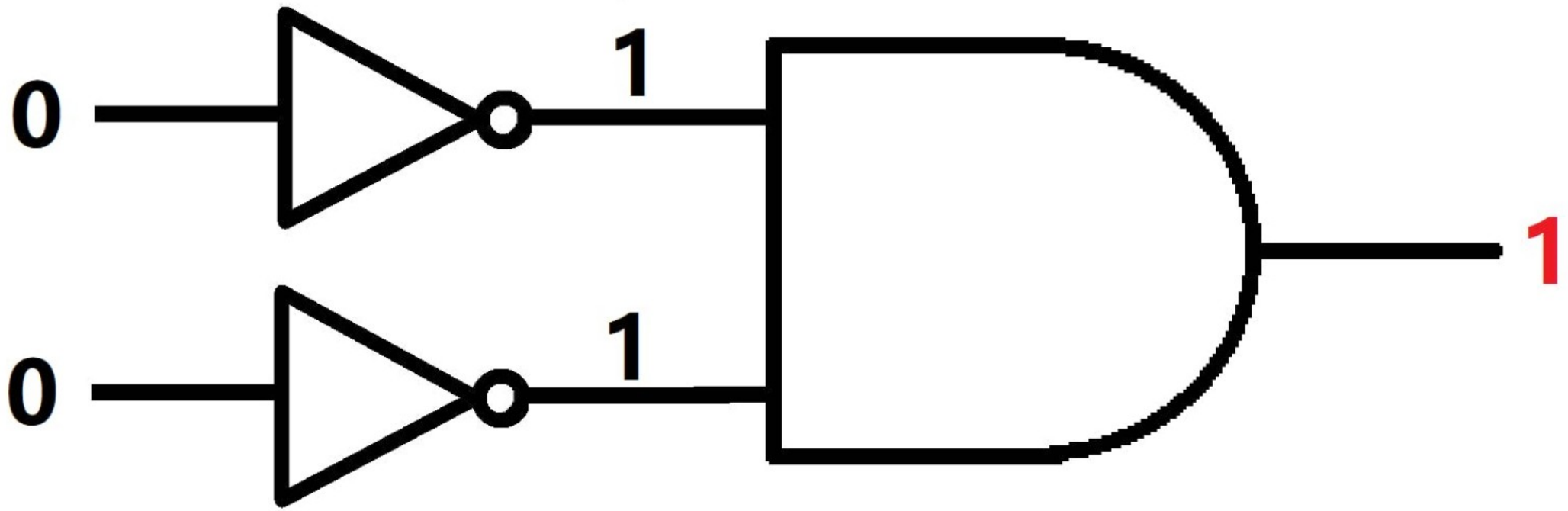
Mentimeter



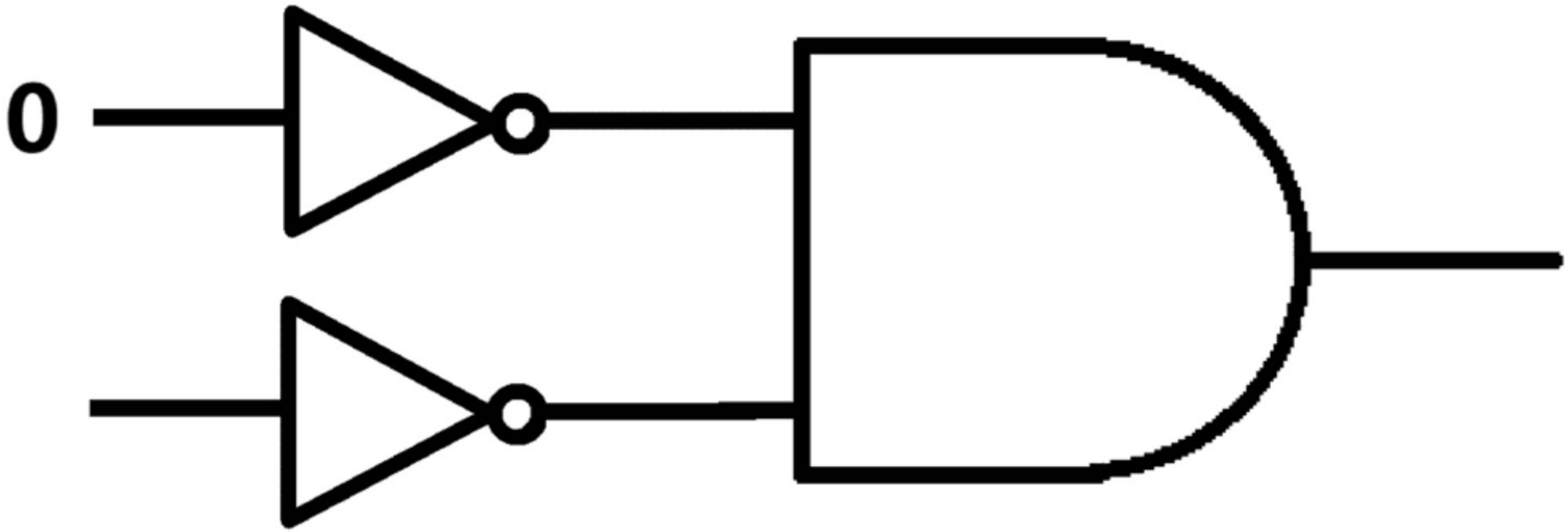
Mentimeter



Mentimeter



Mentimeter

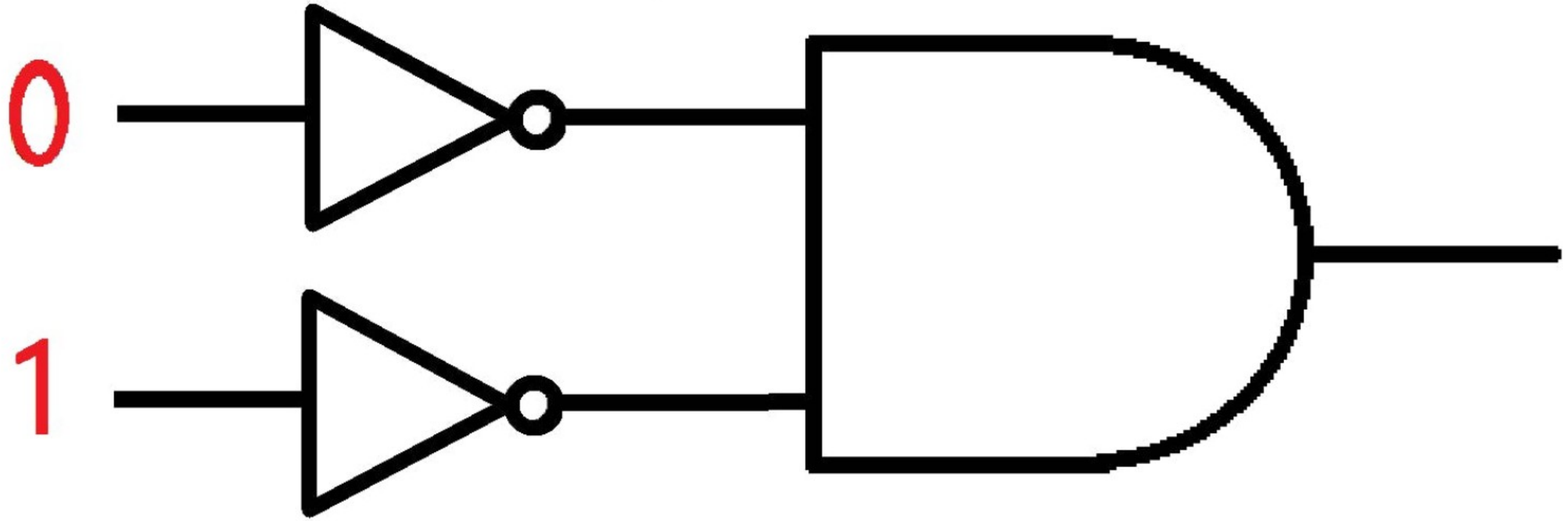


Interactive process

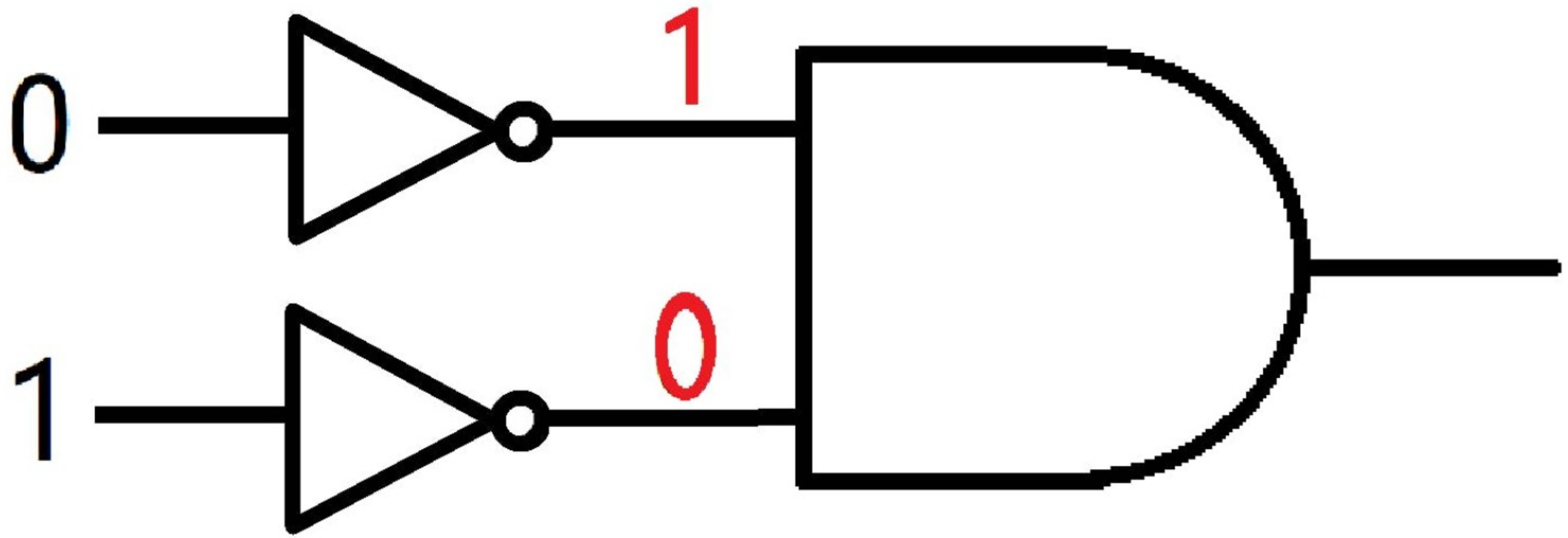
Mentimeter

A	B	F
0	0	1
0	1	
1	0	
1	1	

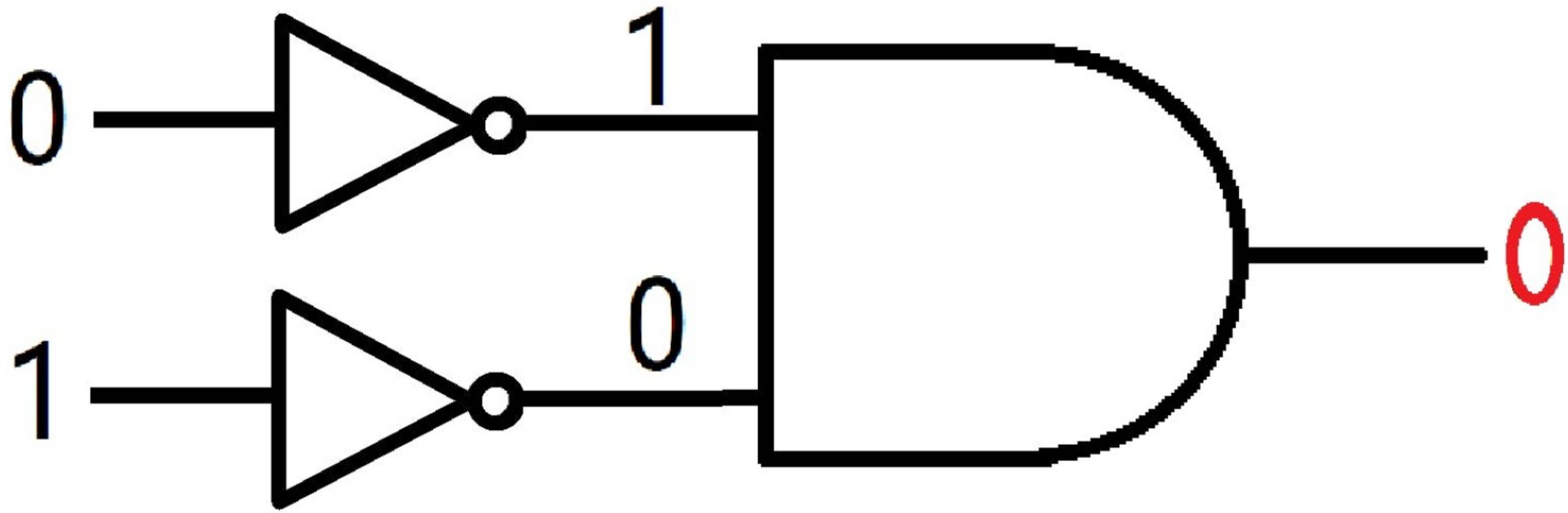
Mentimeter



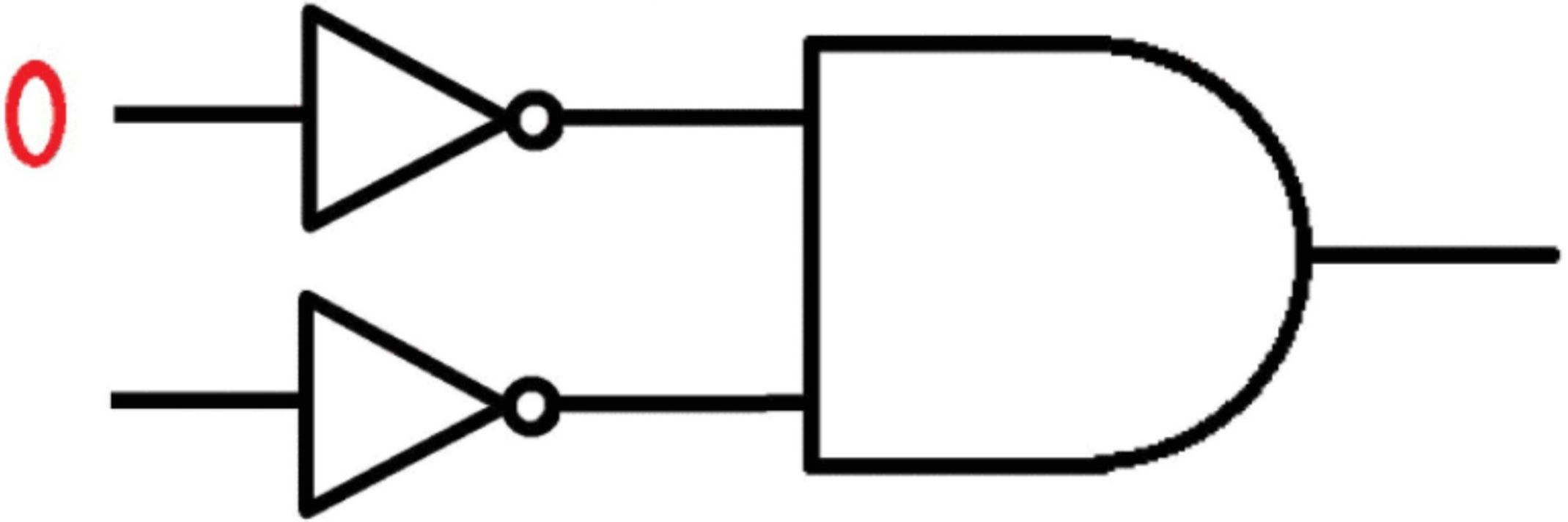
Mentimeter



Mentimeter



Mentimeter



Interactive process

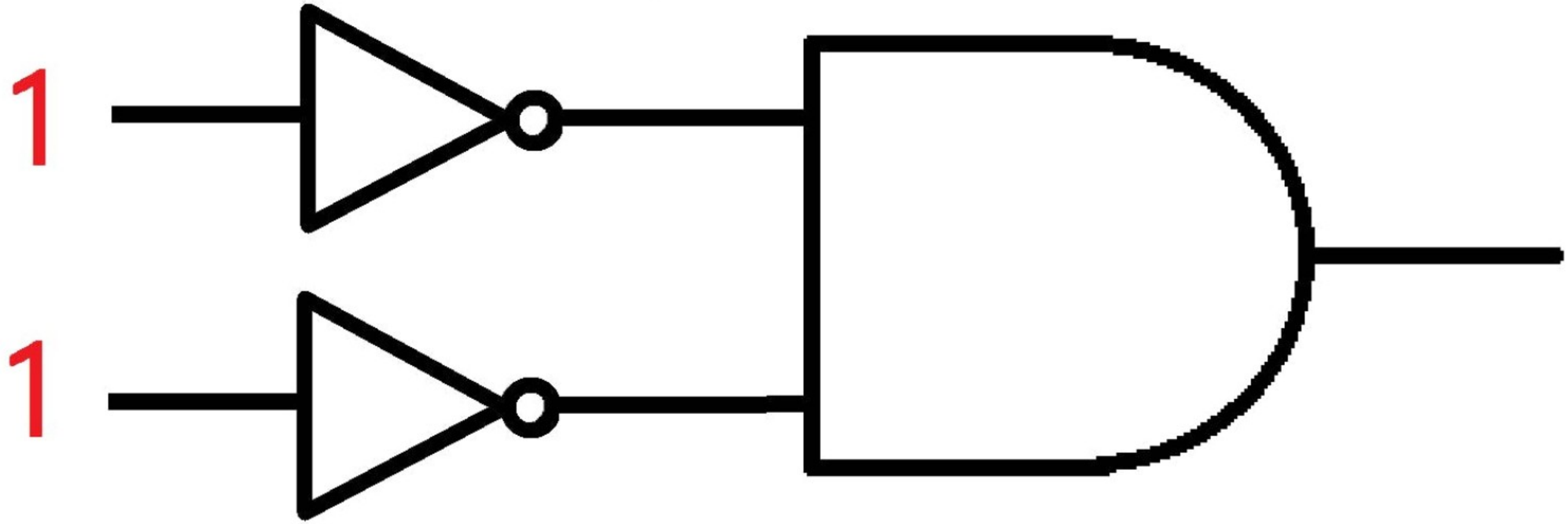
Mentimeter

A	B	F
0	0	1
0	1	0
1	0	
1	1	

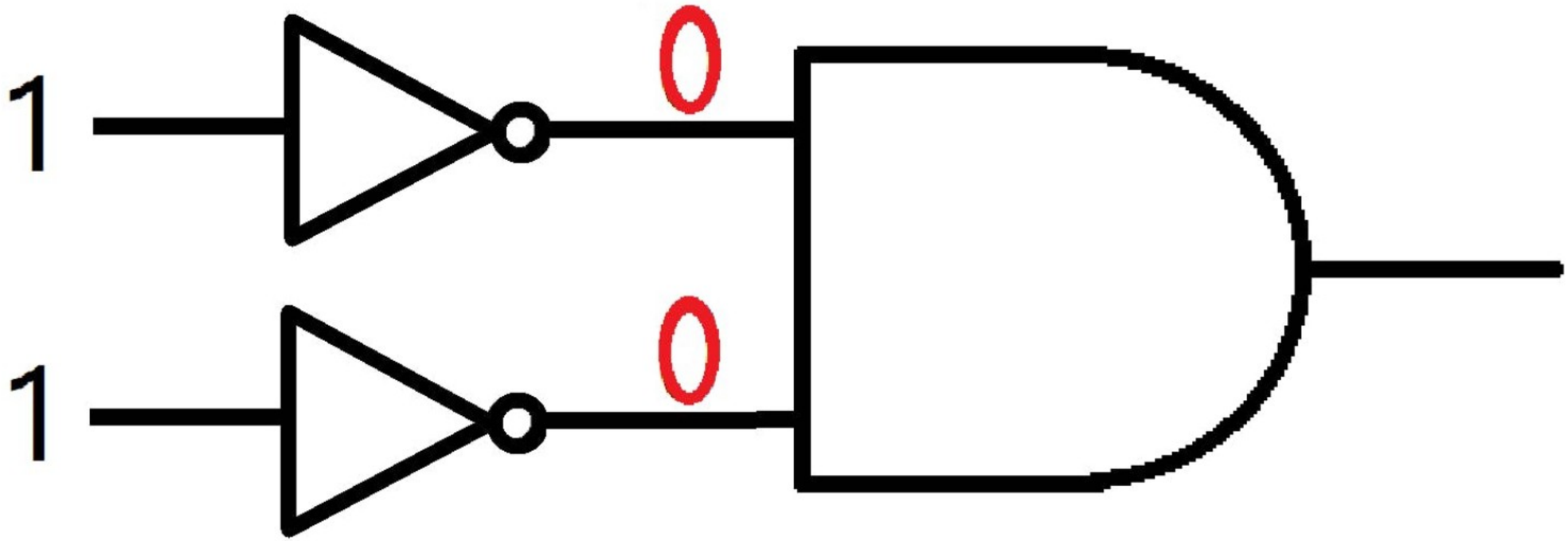
Mentimeter

A	B	F
0	0	1
0	1	0
1	0	0
1	1	

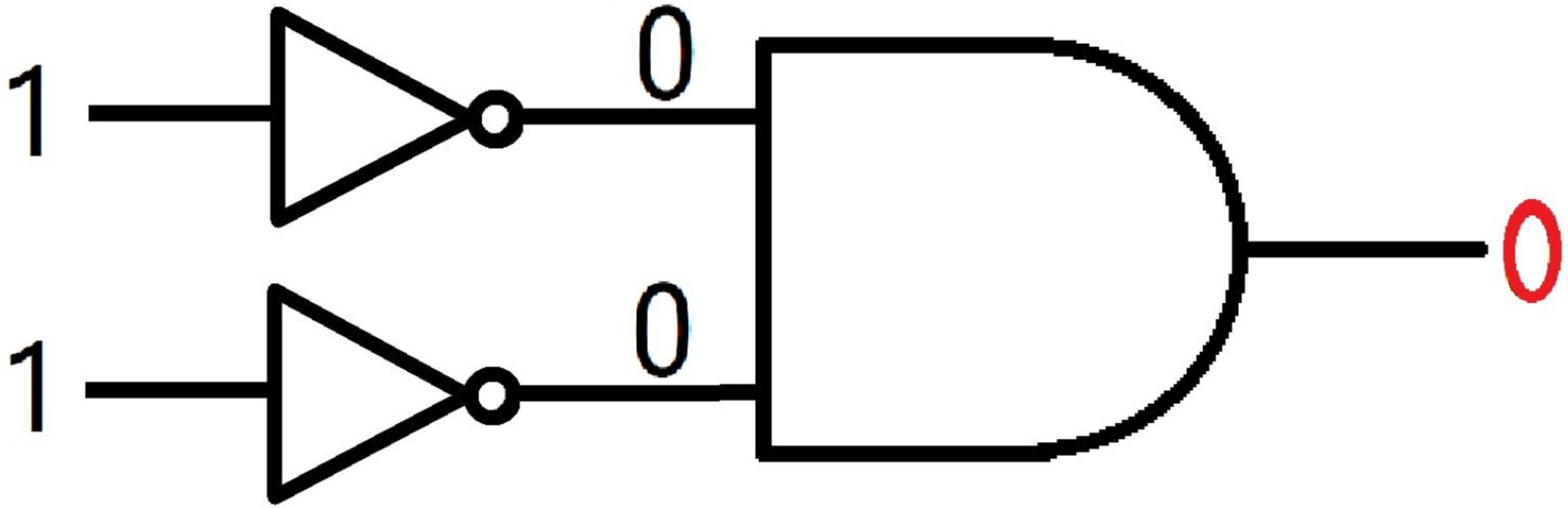
Mentimeter



Mentimeter

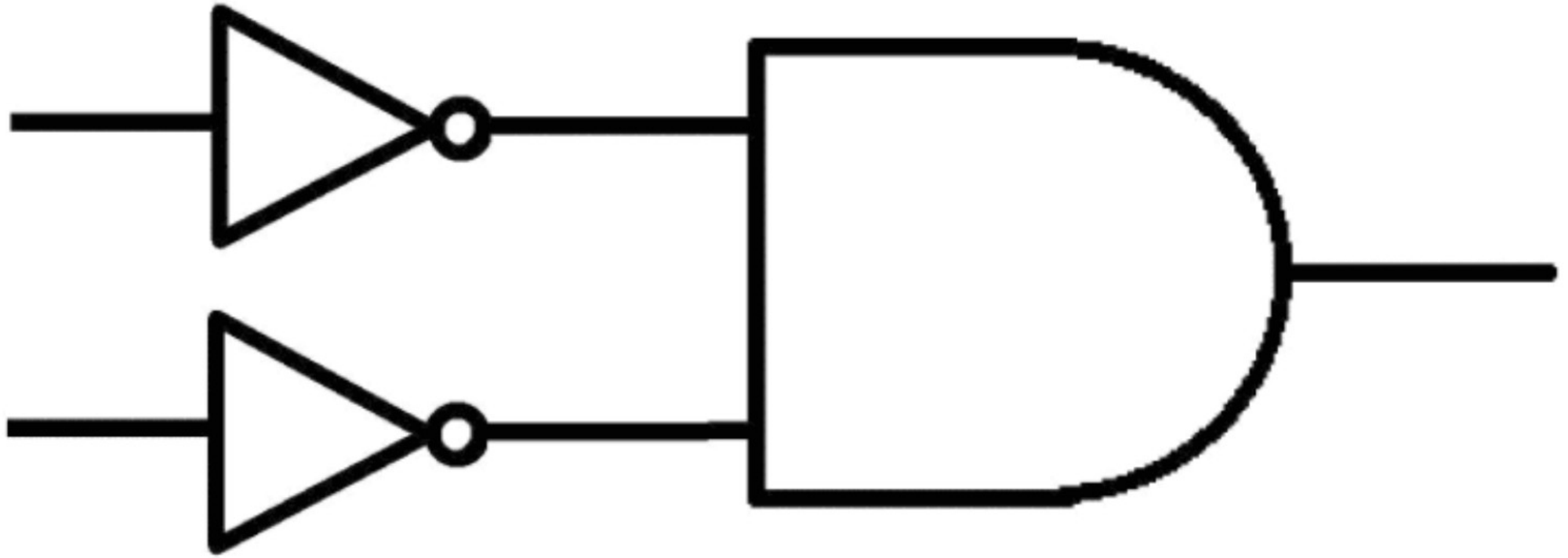


Mentimeter



Mentimeter

1



Interactive process

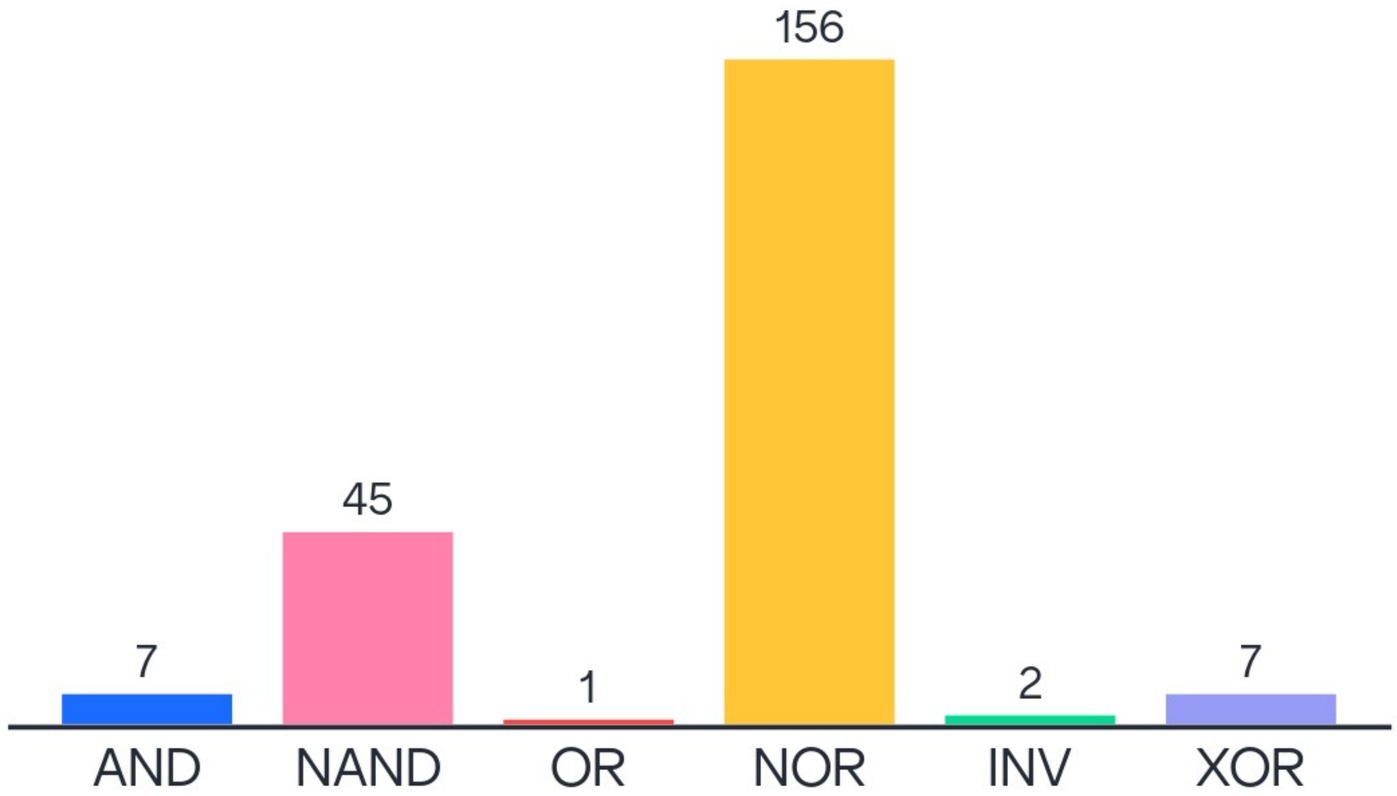
Mentimeter

A	B	F
0	0	1
0	1	0
1	0	0
1	1	0

Hvilken port har denne sannhetsverditabellen?

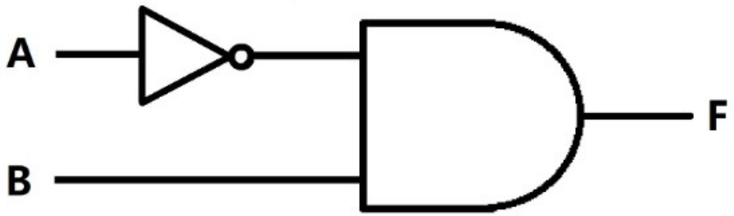
Mentimeter

A	B	F
0	0	1
0	1	0
1	0	0
1	1	0



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Hva er funksjonen til denne kretsen?



1%
F = AB´

12%
F = A´ + B

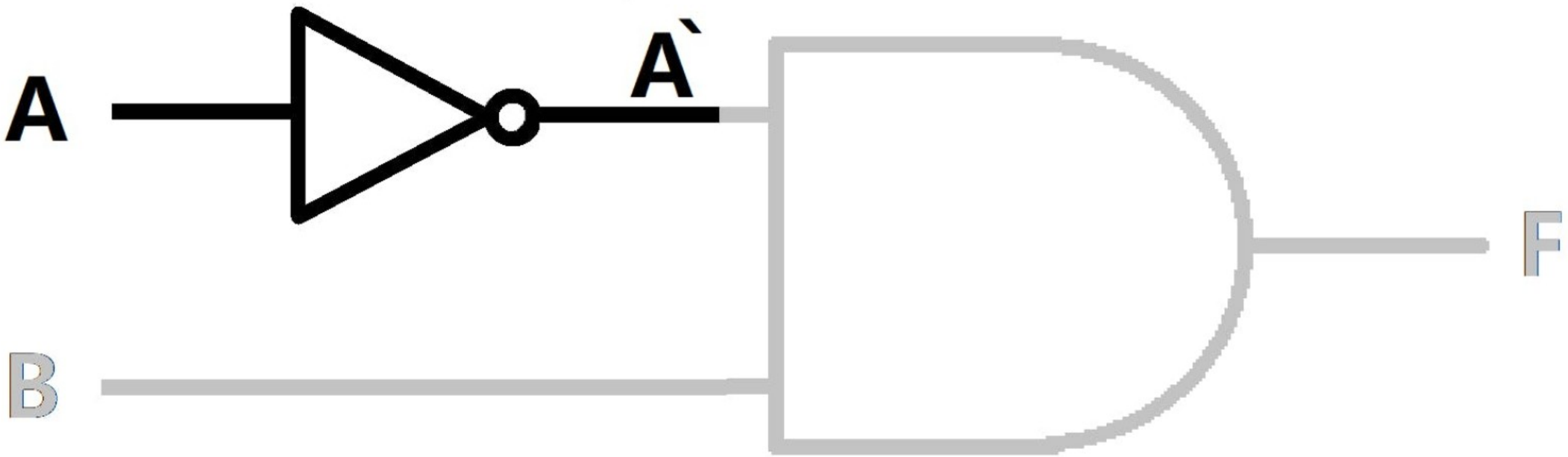
0%
F = (AB)´

85%
F = A´B

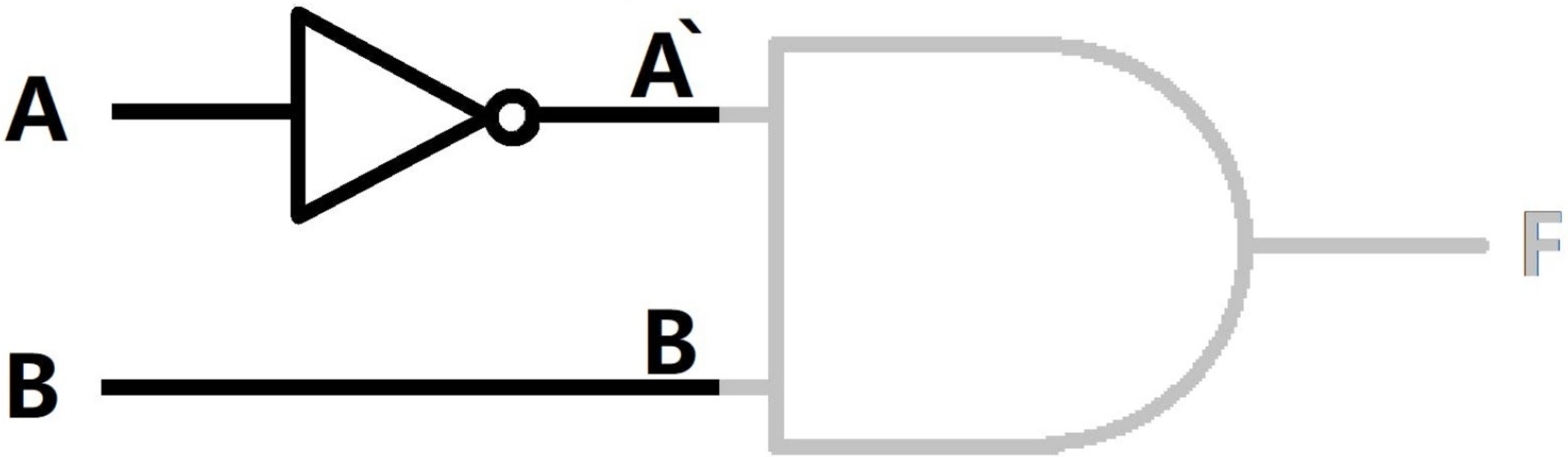
1%
F = A + B´

237

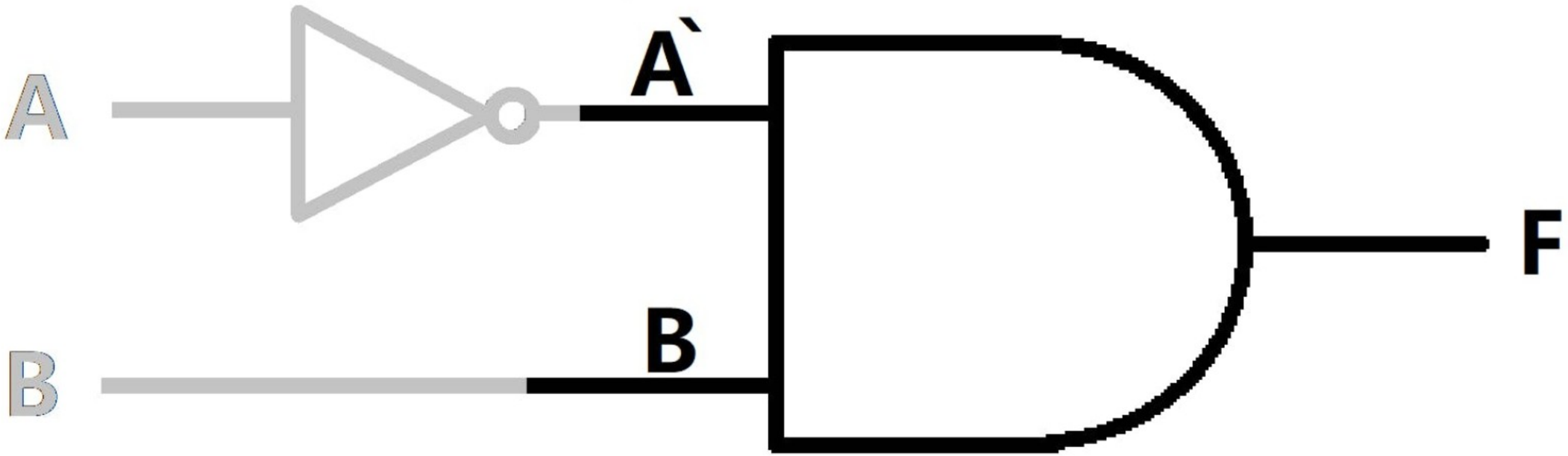
Mentimeter



Mentimeter



Mentimeter



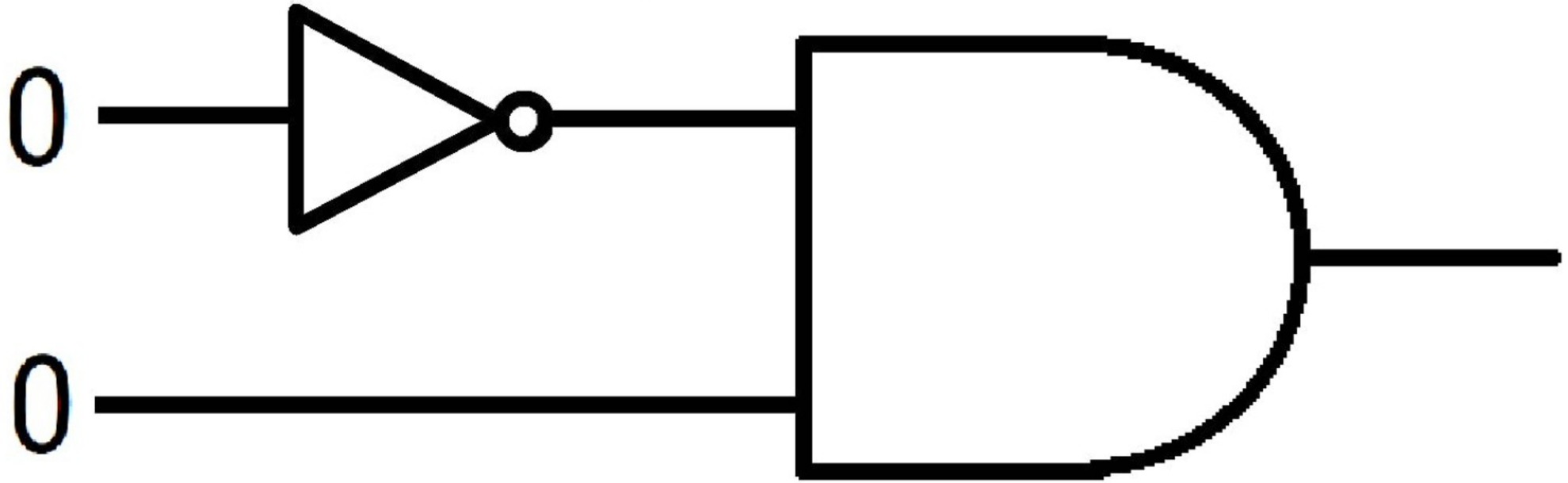
$F = A´B$

Mentimeter

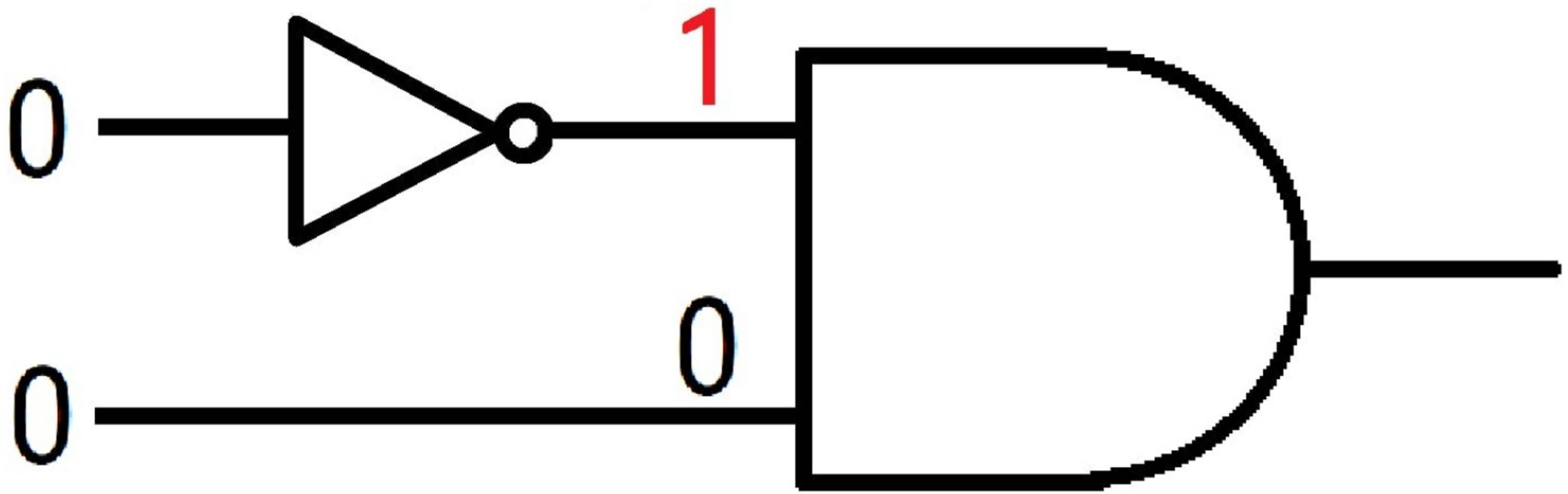
A	B	F
0	0	
0	1	
1	0	
1	1	

Sannhetsverditabellen for F?

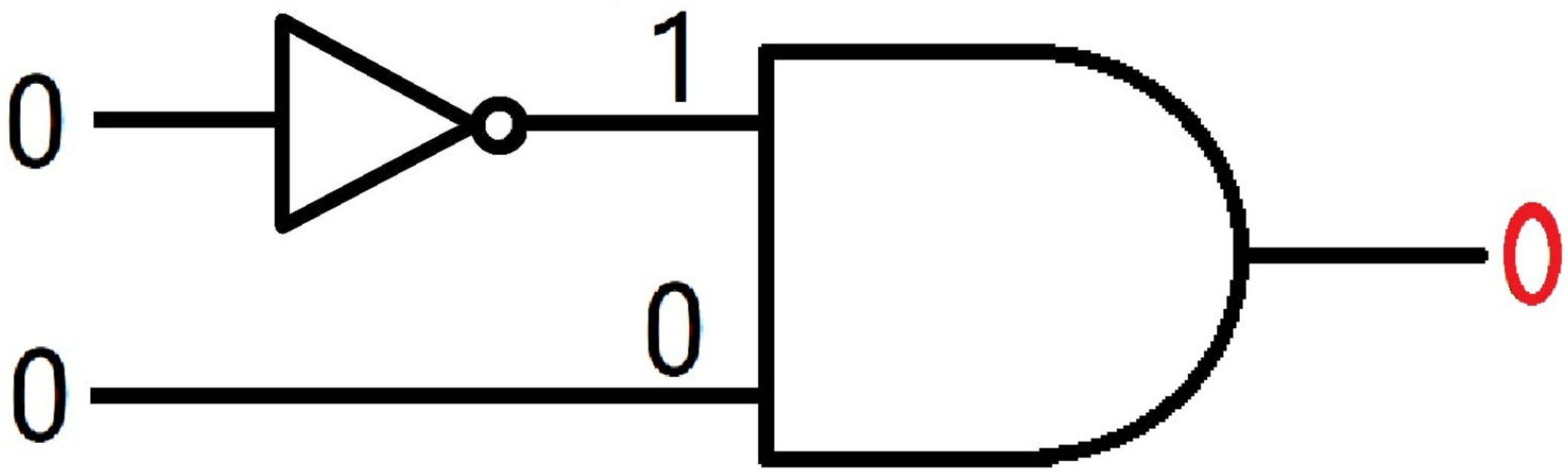
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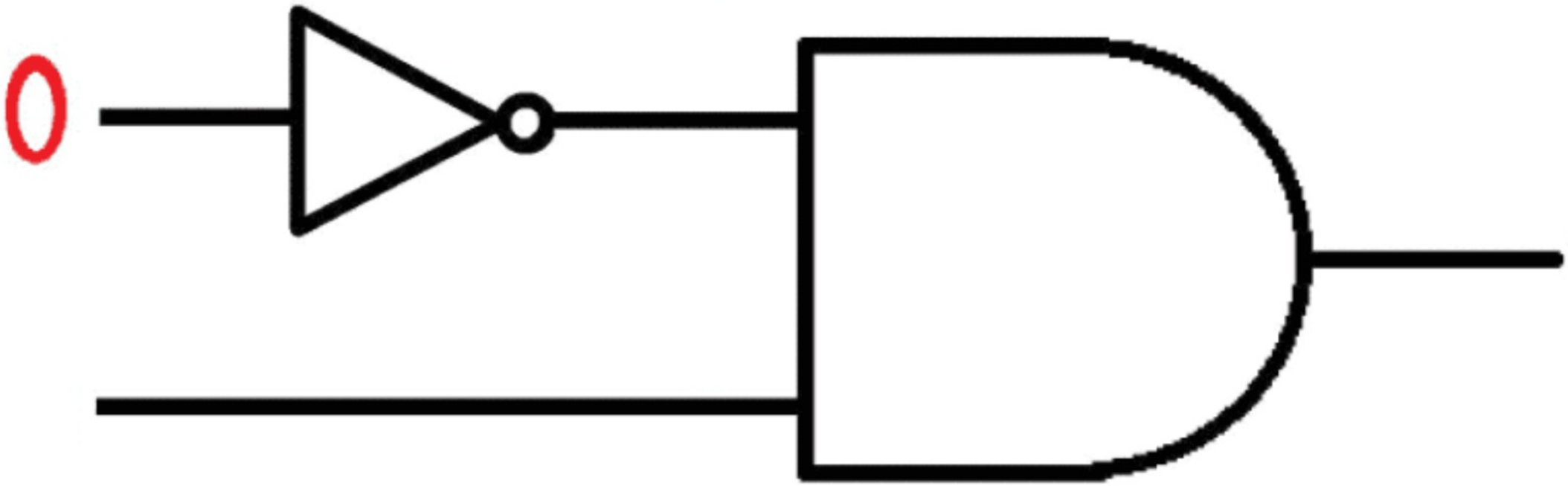
Mentimeter



Mentimeter



Mentimeter

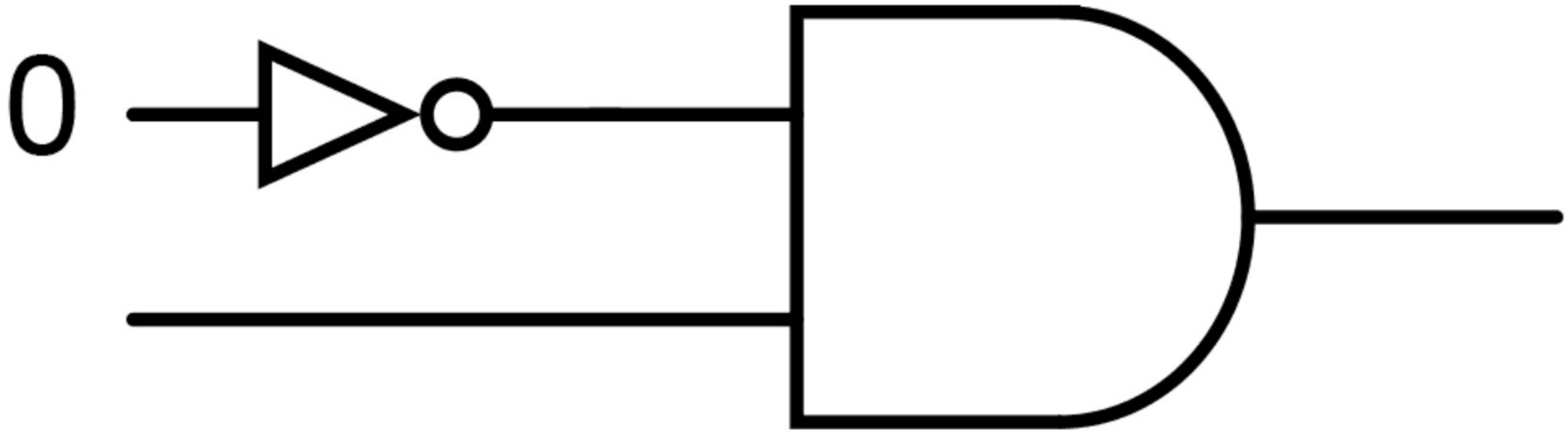


Interativt

Mentimeter

A	B	F
0	0	0
0	1	
1	0	
1	1	

Mentimeter

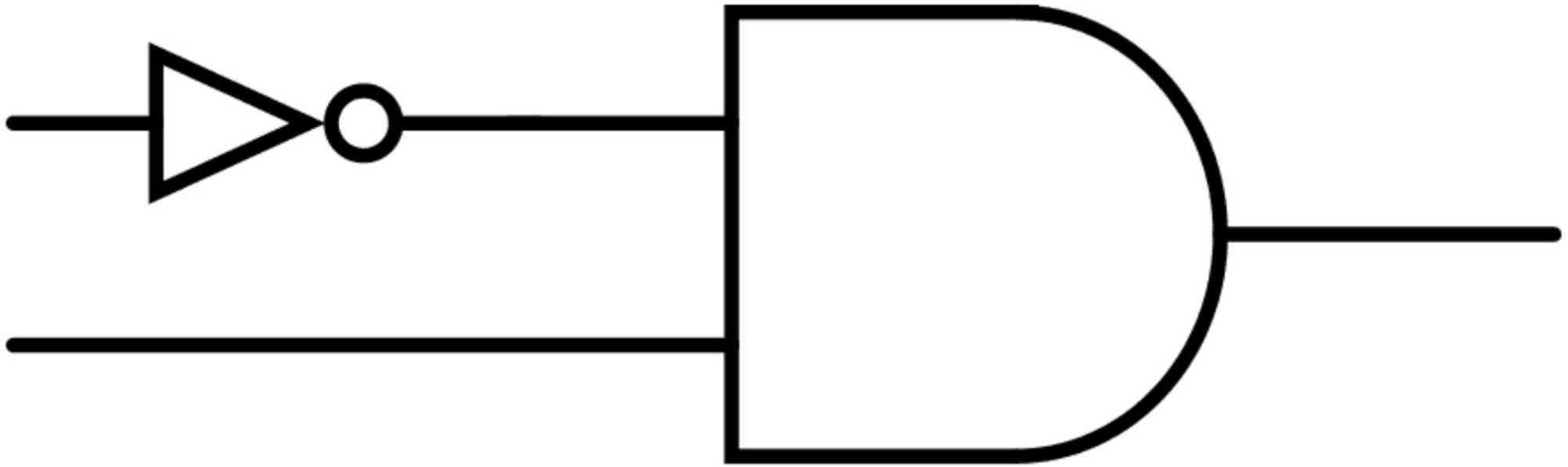


Interaktivt

Mentimeter

A	B	F
0	0	0
0	1	1
1	0	
1	1	

Mentimeter

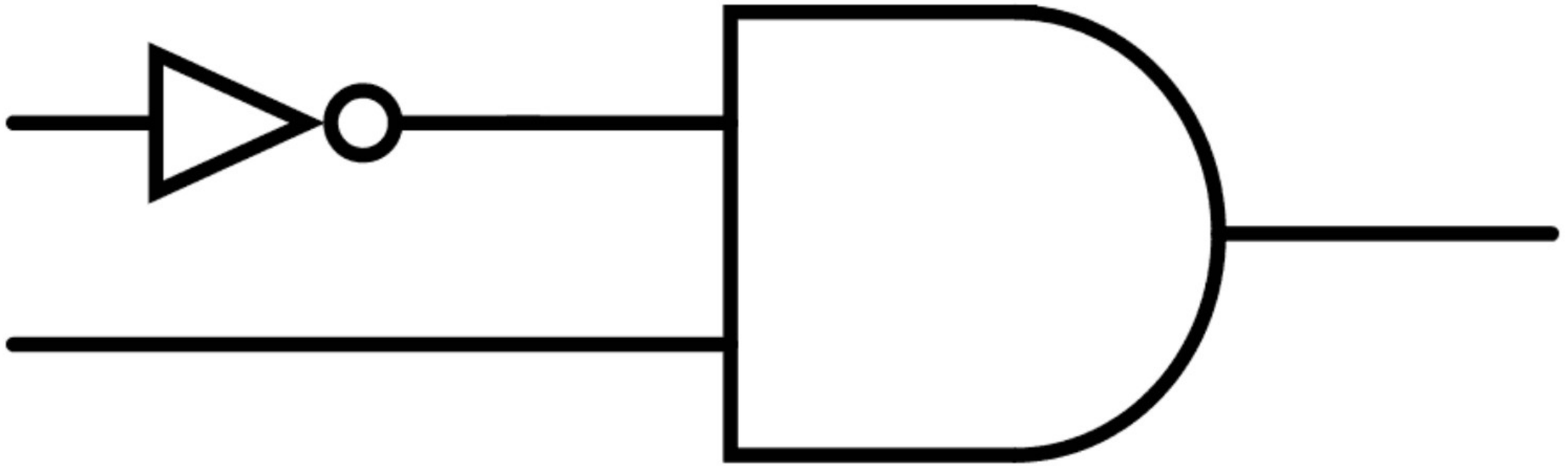


Interaktivt

Mentimeter

A	B	F
0	0	0
0	1	1
1	0	0
1	1	

Mentimeter



Interaktiv

Mentimeter

A	B	F
0	0	0
0	1	1
1	0	0
1	1	0

Hva slags funksjon beskriver denne sannhetsverditabellen?

A	B	F
0	0	0
0	1	0
1	0	1
1	1	0



Mentimeter

Spørsmål

Mentimeter

100 questions
208 upvotes