



Problem:

Prove the logical identity:

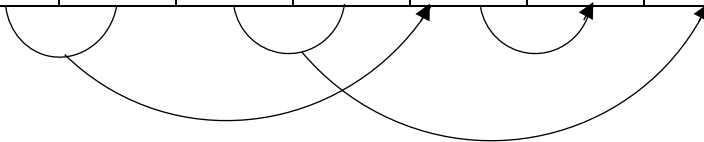
$$\overline{A \vee B} = \bar{A} \wedge \bar{B}.$$

Solution:

Let us prove that $\overline{A \vee B} = \bar{A} \wedge \bar{B}$.

Let's create the truth table of these formulas:

A	B	$\bar{A}$	$\bar{B}$	$A \vee B$	$\overline{A \vee B}$	$\bar{A} \wedge \bar{B}$
0	0	1	1	0	1	1
0	1	1	0	1	0	0
1	0	0	1	1	0	0
1	1	0	0	1	0	0



As we can see, the values in columns 6 and 7 coincide $\Rightarrow \overline{A \vee B} = \bar{A} \wedge \bar{B}$. We have proved De Morgan's law.