

Reductio Ad Absurdum (Reduction to Absurdity)

$$\underline{\neg P \rightarrow Q \wedge \neg Q}$$

P

P	Q	$\neg P$	$Q \wedge \neg Q$	$\neg P \rightarrow Q \wedge \neg Q$	$(\neg P \rightarrow Q \wedge \neg Q) \rightarrow P$
T	T	F	F	T	T
T	F	F	F	T	T
F	T	T	F	F	T
F	F	T	F	F	T

$$\underline{\neg P \wedge R \rightarrow Q \wedge \neg Q}$$

$R \rightarrow P$

P	Q	R	$\neg P \wedge R$	$Q \wedge \neg Q$	①	②	$\textcircled{1} \rightarrow \textcircled{2}$
					$\neg P \wedge R \rightarrow Q \wedge \neg Q$	$R \rightarrow P$	
T	T	T	F	F	T	T	T
T	T	F	F	F	T	T	T
T	F	T	F	F	T	T	T
T	F	F	F	F	T	T	T
F	T	T	T	F	F	F	T
F	T	F	F	F	T	T	T
F	F	T	T	F	F	F	T
F	F	F	F	F	T	T	T

Resolution

$P \vee Q$

$\neg Q \vee R$

$P \vee R$

P	Q	R	$P \vee Q$	$\neg Q \vee R$	①	②	$\text{①} \rightarrow \text{②}$
					$(P \vee Q) \wedge (\neg Q \vee R)$	$P \vee R$	
T	T	T	T	T	T	T	T
T	T	F	T	F	F	T	T
T	F	T	T	T	T	T	T
T	F	F	T	T	T	T	T
F	T	T	T	T	T	T	T
F	T	F	T	F	F	F	T
F	F	T	F	T	F	T	T
F	F	F	F	T	F	F	T