



$$A \vee (B \vee C) \equiv \boxed{\neg B \rightarrow} (A \vee C)$$

*For*
*close*

$$A \rightarrow B \equiv \neg A \vee B$$

↓  
*ass  
com*

$$\boxed{B \vee} (A \vee C)$$

$$\boxed{\neg \neg} B \vee (A \vee C)$$

$$\text{---} \ddot{\cup} \downarrow B \vee (A \vee C)$$

$$x + 1 = y \quad \equiv$$

$$x = y - 1$$

# Case analysis

$$P \rightarrow Q \equiv \neg P \vee Q$$

either  $P$  is  $\top$  or  $P$  is  $\perp$

$$\top \rightarrow Q \equiv \neg \top \vee Q$$

and

$$\perp \rightarrow Q \equiv \neg \perp \vee Q$$

↓  
Proof

↓  
Proof

$P$	$Q$	$P \rightarrow Q \equiv \neg P \vee Q$
0	0	1 = 1
0	1	
1	0	
1	1	

false: 1 dog  
true:  $\infty$

→ all dogs have fur

true: 1 dog  
false:  $\infty$

→ there exists a dog with fur