

(PB0104) Say  $P$ ,  $Q$  and  $R$  are true/false mathematical statements, and we know the following:

(a)  $P \Rightarrow (Q \vee R)$ ,

(b)  $\neg Q \Rightarrow (R \vee \neg P)$

(c)  $(Q \wedge R) \Rightarrow \neg P$ .

Can we deduce *anything* about  $P$ ,  $Q$  or  $R$  individually? For example, is  $R$  definitely false? Is  $P$  definitely true?