

## Mathematics 300 Homework, September 8, 2017.

On page 37, do 1–11 odd.

On page 41, do 1–9 odd.

Make truth tables for the following.

1.  $\sim P \wedge Q$ . (This is the same as  $(\sim P) \vee Q$ .)
2.  $\sim (P \wedge ((\sim Q) \vee P))$
3.  $(\sim P \wedge Q) \vee (\sim (Q \vee R))$ .

Answers to truth table on next page.

$P$	$Q$	$\sim P$	$\sim P \wedge Q$
<b>T</b>	<b>T</b>	<b>F</b>	<b>F</b>
<b>T</b>	<b>F</b>	<b>F</b>	<b>F</b>
<b>F</b>	<b>T</b>	<b>T</b>	<b>T</b>
<b>F</b>	<b>F</b>	<b>T</b>	<b>F</b>

$P$	$Q$	$\sim Q$	$\sim Q \vee P$	$P \wedge (\sim Q \vee P)$	$\sim (P \wedge (\sim Q \vee P))$
<b>T</b>	<b>T</b>	<b>F</b>	<b>T</b>	<b>T</b>	<b>F</b>
<b>T</b>	<b>F</b>	<b>T</b>	<b>T</b>	<b>T</b>	<b>F</b>
<b>F</b>	<b>T</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>T</b>
<b>F</b>	<b>F</b>	<b>T</b>	<b>T</b>	<b>F</b>	<b>T</b>

$P$	$Q$	$R$	$\sim P \wedge Q$	$\sim (Q \vee R)$	$(\sim P \wedge Q) \vee (\sim (Q \vee R))$
<b>T</b>	<b>T</b>	<b>T</b>	<b>F</b>	<b>F</b>	<b>F</b>
<b>T</b>	<b>T</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>
<b>T</b>	<b>F</b>	<b>T</b>	<b>F</b>	<b>F</b>	<b>F</b>
<b>T</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>T</b>	<b>T</b>
<b>F</b>	<b>T</b>	<b>T</b>	<b>T</b>	<b>F</b>	<b>T</b>
<b>F</b>	<b>T</b>	<b>F</b>	<b>T</b>	<b>F</b>	<b>T</b>
<b>F</b>	<b>F</b>	<b>T</b>	<b>F</b>	<b>F</b>	<b>F</b>
<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>T</b>	<b>T</b>