Mathematics 174

Quiz # 2

Name: Key

You must show your work to get full credit.

1. Make a truth table for $p \wedge \sim (q \vee r)$.

p	q	r	$q \vee r$	$\sim (q \vee r)$	$p \wedge \sim (q \vee r)$
T	T	T	T	F	F
T	T	F	T	F	F
T	F	T	T	F	F
T	F	F	F	T	T
F	T	T	T	F	F
F	T	F	T	F	F
F	F	T	T	F	F
F	F	F	F	T	F

2. Make a truth table for $p \wedge \sim q \wedge \sim r$.

p	q	r	$\sim q$	$\sim r$	$p \wedge \sim q \wedge \sim r$
T	T	T	F	F	F
T	T	F	F	T	F
T	F	T	T	F	F
T	F	F	T	T	T
F	T	T	F	F	F
F	T	F	F	T	F
F	F	T	T	F	F
F	F	F	T	T	F

3. Are $p \wedge \sim (q \vee r)$ and $p \wedge \sim q \wedge \sim r$ logically equivalent? Write a sentence or two explaining why or why not.

Yes they are logically equivalent. Because they have the same truth values (same T, F values in truth table.)