MATH310 Groupwork 2022-07-11

NAME:

UID:

1. For each of the following, determine first if the item is a proposition or not. If it is a proposition determine if it is true or false. If it is not a proposition leave the last column blank.

Item	Proposition Y/N	T/F
What time is dinner?		
17 is prime or 10 is prime.		
8.1 is rational and $5 > 1$.		
$2x$ is a rational number.		
$4 \not> 2$ and $2 \not> 4$		
Justin has more than \$10 in his wallet.		

2. Make up a truth table for the propositional form:

$$(P \wedge \sim Q) \vee R$$

Include columns for P, Q, R, $\sim Q$, $P \wedge \sim Q$, and the final reasult.

3. Define the propositions:

   - P: I like cars.
   - Q: I like motorcycles.
   - R: I like rice pudding.

   Write down a sensible English statement correponding to the proposition:

$$\sim P \vee (Q \wedge \sim R)$$

4. Write down a useful negation (a denial, using the book's term) of each of the following. There is more than one answer, so discuss with your group to come to some conclusion about which might be more useful and understandable.

   (a) x is a positive integer.

   (b) The function f has a relative maximum or relative minimum or both.

   (c) Kyle is happy, and Susan is not tall or Chris is confused, or both.