Discrete math
Homework 1

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(a.) If you send me an email message, then I will remember to send you the address.

(b.) If you were born in the United States, then you can be a citizen of this country.

(c.) If you keep your textbook, then it will be a useful reference in your future courses.

(d.) If the Red Wings's goalie plays well, then the Red Wings will win the Stanley Cup.

(e.) If you had the best credentials, then you get the jobs.

(f.) If there's a storm, the beach erodes.

(g.) If you have a valid ~~passport~~ password, then you can log on to the server

~~(h.) If you could master the university~~

(h.) If you don't begin your climb too late, you will reach the summit.

(i.) If you are among the first 100 customers tomorrow, then you will get free ice cream.

CP → ¬I → ¬C
¬C → I → C

30. (a) CP → If I don't stay at home, then it doesn't snow tonight.

I → If it doesn't snow tonight, then I will stay at home.

C → If I stay at home, then it snows tonight.

(b) CP → If it's not a sunny summer day, I don't go to the beach.

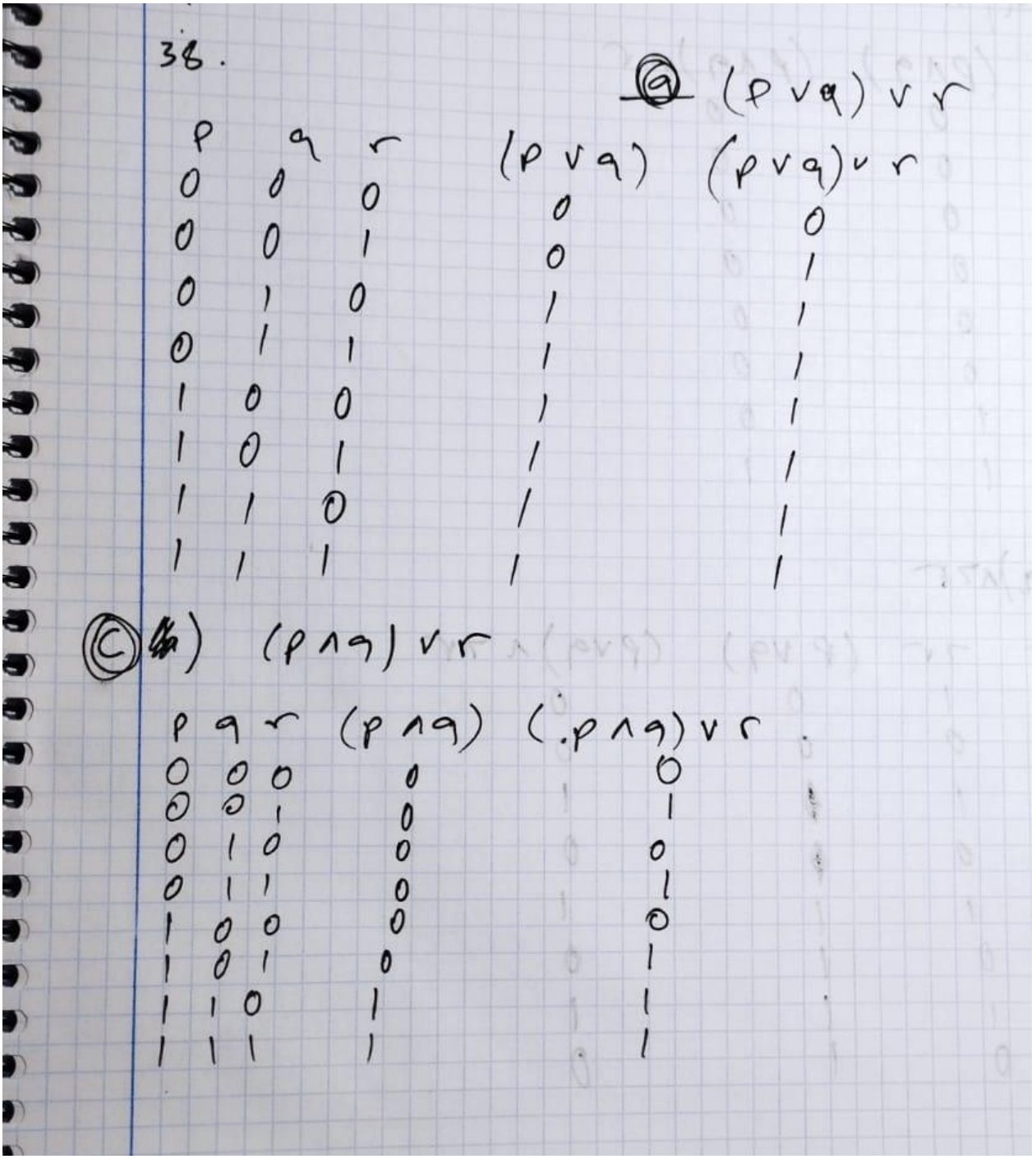
I → If I don't go to the beach, it is not a sunny summer day.

C → If it is a sunny summer day, I go to the beach.

(c) CP → If I don't sleep until noon, I don't stay up late.

I → If I don't stay up late, then I don't sleep until noon.

C → If I sleep until noon, I stay up late.



(el subejercicio b está en la siguiente foto)

(b) $(p \vee q) \wedge r$

p	q	r	$(p \vee q)$	$(p \vee q) \wedge r$
0	0	0	0	0
0	0	1	0	0
0	1	0	1	0
0	1	1	1	1
1	0	0	1	0
1	0	1	1	1
1	1	0	1	0
1	1	1	1	1

(d) $(p \wedge q) \wedge r$

p	q	r	$(p \wedge q)$	$(p \wedge q) \wedge r$
0	0	0	0	0
0	0	1	0	0
0	1	0	0	0
0	1	1	0	0
1	0	0	0	0
1	0	1	0	0
1	1	0	1	0
1	1	1	1	1

(e) $(p \vee q) \wedge \neg r$

p	q	r	$\neg r$	$(p \vee q)$	$(p \vee q) \wedge \neg r$
0	0	0	1	0	0
0	0	1	0	0	0
0	1	0	1	1	1
0	1	1	0	1	0
1	0	0	1	1	1
1	0	1	0	1	0
1	1	0	1	1	1
1	1	1	0	1	0

(f) $(p \wedge q) \vee \neg r$

p	q	r	$\neg r$	$(p \wedge q)$	$(p \wedge q) \vee \neg r$
0	0	0	1	0	1
0	0	1	0	0	0
0	1	0	1	0	1
0	1	1	0	0	0
1	0	0	1	0	1
1	0	1	0	0	0
1	1	0	1	1	1
1	1	1	0	1	1