Problem set 1,2

● Graded

Student

Total Points

90 / 100 pts

Question 1

Exercise 1.2.9d (enter yes or no)

10 / 10 pts

✔ **– 0 pts** Correct

– 10 pts no answer / wrong problem / illegal template

– 10 pts illegible

– 10 pts incorrect

Question 2

Exercise 1.2.9h (enter yes or no)

10 / 10 pts

✔ **– 0 pts** Correct

– 10 pts no answer / wrong problem / illegal template

– 10 pts illegible

– 10 pts incorrect

Question 3

Exercise 1.2.10b (enter yes or no)

10 / 10 pts

✔ **– 0 pts** Correct

– 10 pts no answer / wrong problem

– 10 pts illegible

– 10 pts incorrect

Question 4

Exercise 1.2.12b

10 / 10 pts

✔ **– 0 pts** Correct

– 10 pts no answer / wrong problem

– 10 pts illegible

– 10 pts incorrect notation

– 10 pts Gave the set $S \times T$ instead of the intended answer $T \times S$

– 5 pts This question has 2 parts. Missing/wrong set cardinality(number of elements) in the answer

– 4 pts Minor notation errors(e.g omitted a bracket or a comma)

– 3 pts Definition understanding error

– 5 pts Did not write out the Cartesian product set in the answer

Question 5

Exercise 1.3.14a

0 / 10 pts

– 0 pts Correct

– 10 pts no answer / wrong problem

– 1 pt illegible

✔ **– 5 pts** incorrect co-domain

– 10 pts Wrong / missing delimiters

– 5 pts Incorrect capitalization of variables

✔ **– 5 pts** incorrect domain

– 5 pts delimiters must be matching pairs

You must write out the domain and co-domain using set notation (i.e. listing out the elements of C and D instead of just saying C and D).

Question 6

Exercise 1.3.15.e (enter yes or no)

10 / 10 pts

✔ **– 0 pts** Correct

– 10 pts illegible

– 10 pts incorrect

– 10 pts typed

Question 7

Exercise 2.1.7

10 / 10 pts

✔ **– 0 pts** Correct

– 10 pts no answer / wrong problem

– 10 pts illegible

– 10 pts incorrect notation / this is a conjunction with one negation

– 10 pts typed

– 5 pts extraneous symbol

Question 8

Exercise 2.1.22

10 / 10 pts

✔ **– 0 pts** Correct

– 10 pts no answer / wrong problem

– 10 pts illegible / follow directions

– 5 pts 1 or 2 incorrect entries

– 7.5 pts 3 or 4 incorrect entries

– 10 pts 5 or more incorrect entries

– 10 pts truth table is incomplete / used incorrectly

– 5 pts no sentence included

– 2 pts sentence is vague

Question 9

Exercise 2.1.42

10 / 10 pts

✔ **– 0 pts** Correct

– 10 pts Incorrect

– 10 pts no answer / wrong problem

– 10 pts illegible

– 5 pts 1 or 2 incorrect entries

– 7.5 pts 3 or 4 incorrect entries

– 10 pts 5 or more incorrect entries

– 10 pts Missing Necessary Work

– 5 pts answer the question/ typed

Question 10

Exercise 2.1.45

Resolved **10** / 10 pts

✔ **– 0 pts** Correct

– 10 pts no answer / wrong problem

– 10 pts illegible / unintelligible / does not use formal logic

– 5 pts 1 or 2 incorrect entries

– 7.5 pts 3 or 4 incorrect entries

– 10 pts 5 or more incorrect entries

– 5 pts poor choice of variables led to errors

– 3 pts answer the question

Regrade Request **Submitted on: Sep 12**

I submitted the first 10 questions from the problem set that originally posted by Professor Epstein on blackboard. I was close to finishing the longer version but since Professor Epstein announced that we would be going with the shorter version, I decided to just submit the first 10 questions that I had done on the longer version. It turns out that the questions don't match as the question 10 on the longer version was different than the one on the shorter version (i.e. question 10 on my version was 2.1.42 and question 10 on the shorter version was 2.1.45). Could you please look into this issue?

credit given.

Reviewed on: Sep 18

I also worked with the following students (provide EMLPIDs only)

EMPLID	EMPLID	EMPLID
EMPLID	EMPLID	EMPLID
EMPLID	EMPLID	EMPLID
EMPLID	EMPLID	EMPLID

My answers came in part or in full from the following sources

Lecture 2 slides
(Introduction to logic)

Lecture 3 slides
(Laws and logical equivalence)

Put your answer in each indicated box. Answers must be handwritten, legible and use correct notation.
Study the answers in Appendix A to similar problems so you know what your approach should be.
Larger boxes indicate that you are expected to provide substantial detail.

1. Exercise 1.2.9d (enter yes or no)

Yes

2. Exercise 1.2.9h (enter yes or no)

No

3. Exercise 1.2.10b (enter yes or no)

No

4. Exercise 1.2.12b

$S = \{2,4,6\}$ $T = \{1,3,5\}$ $|T \times S| = |T| \times |S| = 3 \cdot 3 = 9$

$T \times S = \{(1,2),(1,4),(1,6),(3,2),(3,4),(3,6),(5,2),(5,4),(5,6)\}$ $\therefore |T \times S| = 9$

5. Exercise 1.3.14a

Domain: C

Co-domain: D

6. Exercise 1.3.15.e (enter yes or no)

No

7. Exercise 2.1.7

$m \wedge \sim c$

8. Exercise 2.1.22

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

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

because they have the same truth values for all combinations of p, q, and r

9. Exercise 2.1.35

let $p = (x \leq -1)$

$q = (x > 1)$

$\sim(p \vee q) \equiv \sim p \wedge \sim q$ De Morgan's Law for real numbers

$= \boxed{x > -1 \text{ and } x \leq 1}$

10. Exercise 2.1.42

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

$(\sim p \wedge q) \wedge (q \wedge r) \wedge \sim q$ has a truth column that is all false which means that it is a contradiction