

MTH202 Assignment 1 Solution

FALL 2023

Note: Please Don't make copy paste

a) $A - (B - C) = (A \cap B^c) \cup (A \cap C)$

(c) law of logic

L.H.S $A - (B - C)$
 $A \cap (B - C)^c$
 $A \cap (B \cap C^c)^c$
 $A \cap (B^c \cup C)$
 $A \cap (B^c \cup C)$
 $(A \cap B^c) \cup (A \cap C)$

By alternative Representation of set difference
 $A - B = A \cap B^c$
Demorgan law $(A \cap B)^c = A^c \cup B^c$
Double Complement law $(A^c)^c = A$

\Rightarrow R.H.S Prove.

(b) membership table

A	B	C	B - C	A - B - C	B ^c	A ∩ C	A ∩ B ^c	(A ∩ B ^c) ∪ (A ∩ C)
1	1	1	0	1	0	1	0	1
1	1	0	1	0	0	0	0	0
1	0	1	0	1	1	1	1	1
1	0	0	0	1	1	0	1	1
0	1	1	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0
0	0	1	0	0	1	0	0	0
0	0	0	0	0	1	0	0	0