

Exercise 2.6.9

Introduction to Discrete Mathematics MATH 2001

SEBASTIAN CASALAINA

ABSTRACT. This is Exercise 2.6.9 from Hammack [Ham13, §2.6]:

Exercise 2.6.9. Decide whether the pairs of statements $p \wedge q$ and $\sim (\sim P \vee \sim Q)$ are logically equivalent.

Solution. The two statements are logically equivalent. Indeed, considering the truth table

p	q	$p \wedge q$	$\sim P \vee \sim Q$	$\sim (\sim P \vee \sim Q)$
T	T	T	F	T
T	F	F	T	F
F	T	F	T	F
F	F	F	T	F

we see that the columns for $p \wedge q$ and $\sim (\sim P \vee \sim Q)$ are the same, so that the two statements are logically equivalent. \square

REFERENCES

[Ham13] Richard Hammack, *Book of proof*, Creative Commons, 2013.

UNIVERSITY OF COLORADO, DEPARTMENT OF MATHEMATICS, CAMPUS BOX 395, BOULDER, CO 80309

Email address: casa@math.colorado.edu