PSET Example

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Section 1 - Proof

[1] **Problem 1:** Ex Falso Quodlibet

1	(1)	P	A
2	(2)	$\neg P$	A
3	(3)	$\neg Q$	A
1, 2	(4)	$P \wedge \neg P$	$\wedge$ I 1,2
1, 2	(5)	$\neg\neg Q$	RA 3,4
1, 2	(6)	Q	DN 5

[1] **Problem 2:** Disjunctive Syllogism

1	(1)	$P \vee Q$	A
2	(2)	$\neg P$	A
3	(3)	P	A
2, 3	(4)	Q	EFQ 2,3
5	(5)	Q	A
1, 2	(6)	Q	$\vee$ E 1,3,4,5,5

Section 2 - Truth Table

[2] **Problem 1:** Is the following a valid argument?

$P \vee Q, P \vdash \neg Q$

Invalid

P	Q	P	$\vee$	Q
1	1	1	**1**	1
1	0	1	**1**	0
0	1	0	**1**	1
0	0	0	**0**	0

P	Q	$\neg$	Q
1	1	**0**	1
1	0	**1**	0
0	1	**0**	1
0	0	**1**	0

The lines where P is true must be the same in both tables for the argument to be valid, and they are not.