# Equations And Proof

1. A table is used with two columns
2. To increase the line-height use the package `setspace` and add `\onehalfspacing` after the beginning of your document

Proving $(q \Leftrightarrow (\neg p \vee \neg q)) \Leftrightarrow (\neg p \wedge q)$

| | |
|---|---|
| $q \Leftrightarrow (\neg p \vee \neg q)$ | |
| $(q \wedge (\neg p \vee \neg q)) \vee (\neg q \wedge \neg(\neg p \vee \neg q))$ | Equivalence |
| $(q \wedge (\neg p \vee \neg q)) \vee (\neg q \wedge (\neg\neg p \wedge \neg\neg q))$ | DeMorgan |
| $(q \wedge (\neg p \vee \neg q)) \vee (\neg q \wedge (p \wedge q))$ | Double Negation |
| $(q \wedge (\neg p \vee \neg q)) \vee (\bot \wedge p)$ | Complement & Associative |
| $(q \wedge (\neg p \vee \neg q))$ | $(\bot \wedge p)$ Bottom Always False |
| $(q \wedge \neg p) \vee (q \wedge \neg q)$ | Distributive |
| $q \wedge \neg p$ | |

Therefore $(q \Leftrightarrow (\neg p \vee \neg q)) \Leftrightarrow (\neg p \wedge q)$