

|   |  |
|---|--|
| <p style="text-align: center;">Conjunction Introduction<br/>&amp;I</p>                    | <p style="text-align: right;">Two Line Rule</p> $  \begin{array}{l}  A \rightarrow B \\  A \\  \vdash B  \end{array}  $  |
| <p style="text-align: center;">Conjunction Elimination<br/>&amp;E</p>                     | <p style="text-align: right;">Two Line Rule</p> $  \begin{array}{l}  A \rightarrow B \\  B \rightarrow A \\  \vdash A \leftrightarrow B  \end{array}  $  |
| <p style="text-align: center;">Disjunction Introduction<br/><math>\vee</math>I</p>        | <p style="text-align: right;">One Line Rule</p> $  \begin{array}{l}  A \leftrightarrow B \\  \vdash A \rightarrow B \\  \mathbf{OR} \\  A \leftrightarrow B \\  \vdash B \rightarrow A  \end{array}  $   |
| <p style="text-align: center;">Disjunction Elimination<br/><math>\vee</math>E</p>         | <p style="text-align: right;">Multi-Line Rule</p> $  \begin{array}{l}  \left  \begin{array}{l} A \\ \dots \\ \dots \\ B \ \& \ \sim B \end{array} \right. \begin{array}{l} H \\ \#, \text{ rule} \\ \#, \text{ rule} \\ \#, \text{ rule} \end{array} \\  \vdash \sim A \qquad \qquad \qquad \#, \text{ rule}  \end{array}  $ |
| <p style="text-align: center;">Conditional Introduction<br/><math>\rightarrow</math>I</p> | <p style="text-align: right;">One Line Rule</p> $  \begin{array}{l}  \sim\sim A \\  \vdash A  \end{array}  $   |

|   |  |   |   |      |         |      |         |   |         |                          |         |
|---|--|---|---|------|---------|------|---------|---|---------|--------------------------|---------|
| <p style="text-align: center;">Conditional Elimination<br/><math>\rightarrow E</math></p>         | <p style="text-align: right;">Two Line Rule</p> <p>A<br/>B<br/><math>\vdash A \&amp; B</math></p>  |   |   |      |         |      |         |   |         |                          |         |
| <p style="text-align: center;">Bi-conditional Introduction<br/><math>\leftrightarrow I</math></p> | <p style="text-align: right;">One Line Rule</p> <p>A &amp; B<br/><math>\vdash A</math><br/><b>OR</b><br/>A &amp; B<br/><math>\vdash B</math></p>   |   |   |      |         |      |         |   |         |                          |         |
| <p style="text-align: center;">Bi-conditional Elimination<br/><math>\leftrightarrow E</math></p>  | <p style="text-align: right;">One Line Rule</p> <p>A<br/><math>\vdash A \vee</math> (anything)</p>   |   |   |      |         |      |         |   |         |                          |         |
| <p style="text-align: center;">Negation Introduction<br/><math>\sim I</math></p>                  | <p style="text-align: right;">Three Line Rule</p> <p>A <math>\vee</math> B<br/>A <math>\rightarrow</math> C<br/>B <math>\rightarrow</math> C<br/><math>\vdash C</math></p>   |   |   |      |         |      |         |   |         |                          |         |
| <p style="text-align: center;">Negation Elimination<br/><math>\sim E</math></p>                   | <p style="text-align: right;">Multi-Line Rule</p> <table style="border-collapse: collapse; margin-left: 20px;"> <tr> <td style="border-left: 1px solid black; padding-left: 5px;">A</td> <td style="padding-left: 20px;">H</td> </tr> <tr> <td style="border-left: 1px solid black; padding-left: 5px;">....</td> <td style="padding-left: 20px;">#, rule</td> </tr> <tr> <td style="border-left: 1px solid black; padding-left: 5px;">....</td> <td style="padding-left: 20px;">#, rule</td> </tr> <tr> <td style="border-left: 1px solid black; padding-left: 5px;">B</td> <td style="padding-left: 20px;">#, rule</td> </tr> <tr> <td style="padding-left: 5px;"><math>\vdash A \rightarrow B</math></td> <td style="padding-left: 20px;">#, rule</td> </tr> </table> | A | H | .... | #, rule | .... | #, rule | B | #, rule | $\vdash A \rightarrow B$ | #, rule |
| A   | H  |   |   |      |         |      |         |   |         |                          |         |
| ....  | #, rule  |   |   |      |         |      |         |   |         |                          |         |
| ....  | #, rule  |   |   |      |         |      |         |   |         |                          |         |
| B   | #, rule  |   |   |      |         |      |         |   |         |                          |         |
| $\vdash A \rightarrow B$  | #, rule  |   |   |      |         |      |         |   |         |                          |         |

## Instructions for using flash cards

On one side of the is the proper name of the rule as well as the shorthand used in proofs. On the other side is an example of how the rule works and what it would look like as well as a notation on how many lines are needed to be cited in your justification in the proof.

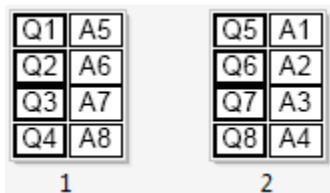
Example

If you do a conjunction introduction for A and B. It would be a 2 line rule and your justification would read 2,3 &I.

## Instructions for printing flash cards

This is going to get a little complicated and for that I apologize.

They are created as the image below shows.



So that it can be printed front to back and the answer will be with the corresponding question.