**Logic Tool Results**

Logical Expression: ⊢(p→q)∨(q→r)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Line | Expression | Rule | First Segment | Second Segment | Third Segment |
| 1 | q∨¬q | LEM |  |  |  |
| ┌--------------------------------------------------------------------------------------------------------------┐ | | | | | |
| 2 | q | Assumption |  |  |  |
| ┌------------------------------------------------------------------------------------------------------┐ | | | | | |
| 3 | p | Assumption |  |  |  |
| 4 | q | Copy | 2 |  |  |
| └------------------------------------------------------------------------------------------------------┘ | | | | | |
| 5 | p→q | →i | 3-4 |  |  |
| 6 | (p→q)∨(q→r) | ∨i1 | 5 |  |  |
| └--------------------------------------------------------------------------------------------------------------┘ | | | | | |
| ┌--------------------------------------------------------------------------------------------------------------┐ | | | | | |
| 7 | ¬q | Assumption |  |  |  |
| ┌------------------------------------------------------------------------------------------------------┐ | | | | | |
| 8 | q | Assumption |  |  |  |
| 9 | ⊥ | ¬e | 7 | 8 |  |
| 10 | r | ⊥e | 9 |  |  |
| └------------------------------------------------------------------------------------------------------┘ | | | | | |
| 11 | q→r | →i | 8-10 |  |  |
| 12 | (p→q)∨(q→r) | ∨i2 | 11 |  |  |
| └--------------------------------------------------------------------------------------------------------------┘ | | | | | |
| 13 | (p→q)∨(q→r) | ∨e | 1 | 2-6 | 7-12 |