**Ein- und zweistellige Junktoren**

**Einstellige Junktoren**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | A | das Wahre | | w | w | | f | w | | |  |  | | --- | --- | | A | das Falsche | | w | f | | f | f | | |  |  | | --- | --- | | A | Bestätigung | | w | w | | f | f | | |  |  | | --- | --- | | A | Negation | | w | f | | f | w | |

**Zweistellige Junktoren**

Es gibt 24 = 16 zweistellige Junktoren. Vervollständigen Sie die Wahrheitswerttafeln.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | | A | B | (1) | | w | w | w | | w | f | w | | f | w | w | | f | f | w | | |  |  |  | | --- | --- | --- | | A | B | (4) | | w | w | w | | w | f | w | | f | w | w | | f | f | f | | |  |  |  | | --- | --- | --- | | A | B | (7) | | w | w | w | | w | f | w | | f | w | f | | f | f | w | | |  |  |  | | --- | --- | --- | | A | B | (9) | | w | w | w | | w | f | w | | f | w | f | | f | f | f | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | | A | B | (6) | | w | w | w | | w | f | f | | f | w | w | | f | f | w | | |  |  |  | | --- | --- | --- | | A | B | (10) | | w | w | w | | w | f | f | | f | w | w | | f | f | f | | |  |  |  | | --- | --- | --- | | A | B | (12) | | w | w | w | | w | f | f | | f | w | f | | f | f | w | | |  |  |  | | --- | --- | --- | | A | B | (3) | | w | w | w | | w | f | f | | f | w | f | | f | f | f | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | | A | B | (14) | | w | w | f | | w | f | f | | f | w | w | | f | f | w | | |  |  |  | | --- | --- | --- | | A | B | (11) | | w | w | f | | w | f | f | | f | w | w | | f | f | f | | |  |  |  | | --- | --- | --- | | A | B | (13) | | w | w | f | | w | f | f | | f | w | f | | f | f | w | | |  |  |  | | --- | --- | --- | | A | B | (2) | | w | w | f | | w | f | f | | f | w | f | | f | f | f | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | | A | B | (16) | | w | w | f | | w | f | w | | f | w | w | | f | f | w | | |  |  |  | | --- | --- | --- | | A | B | (5) | | w | w | f | | w | f | w | | f | w | w | | f | f | f | | |  |  |  | | --- | --- | --- | | A | B | (15) | | w | w | f | | w | f | w | | f | w | f | | f | f | w | | |  |  |  | | --- | --- | --- | | A | B | (8) | | w | w | f | | w | f | w | | f | w | f | | f | f | f | |

1. z.B.
   * (7) Fifi ist ein Hund, falls er ein Dackel ist.
   * (8) Wir gehen ins Theater statt ins Kino.
   * (9) Ich esse zwei oder drei Crêpes.
   * (11) Nicht für die Schule, sondern für das Leben lernen wir.
   * (13) Ich will weder Broccoli noch Rosenkohl.
2. „A ist eine hinreichende Bedingung für B“ ist der Junktor (6) „wenn A dann B“.  
   „A ist eine notwendige Bedingung für B“ ist der Junktor (7) „A falls B“.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A | B | C | A und B | wenn A und B, dann C |
| w | w | w | w | w |
| w | w | f | w | f |
| w | f | w | f | w |
| w | f | f | f | w |
| f | w | w | f | w |
| f | w | f | f | w |
| f | f | w | f | w |
| f | f | f | f | w |

|  |  |  |  |
| --- | --- | --- | --- |
| A | B | C | entweder A oder B oder C |
| w | w | w | f |
| w | w | f | f |
| w | f | w | f |
| w | f | f | w |
| f | w | w | f |
| f | w | f | w |
| f | f | w | w |
| f | f | f | f |

|  |  |  |  |
| --- | --- | --- | --- |
| A | B | C | weder A, noch B, noch C |
| w | w | w | f |
| w | w | f | f |
| w | f | w | f |
| w | f | f | f |
| f | w | w | f |
| f | w | f | f |
| f | f | w | f |
| f | f | f | w |

|  |  |  |  |
| --- | --- | --- | --- |
| A | B | C | von A, B und C jedenfalls B |
| w | w | w | w |
| w | w | f | w |
| w | f | w | f |
| w | f | f | f |
| f | w | w | w |
| f | w | f | w |
| f | f | w | f |
| f | f | f | f |

|  |  |  |  |
| --- | --- | --- | --- |
| (1) A ∨ (¬A) | (2) A ∧ (¬A) | (3) A ∧ B | (4) A ∨B |
| (5) (A ∧ (¬B)) ∨   (B ∧ (¬A)) | (6) A → B | (7) B → A | (8) ¬(A → B) |
| (9) A | (10) B | (11) ¬(B → A) | (12) A ↔ B |
| (13) ¬(A ∨ B) | (14) ¬A | (15) ¬B | (16) ¬(A ∧ B) |



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| A | B | A ∧ B | ¬A | ¬B | (¬A) ∧ (¬B) | (A ∧ B) ∨ ((¬A) ∧ (¬B)) |
| w | w | w | f | f | f | w |
| w | f | f | f | w | f | f |
| f | w | f | w | f | f | f |
| f | f | f | w | w | w | w |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| A | B | ¬A | B ∧ (¬A) | A ∨ (B∧ (¬A)) | ¬ (A ∨ (B ∧ ¬ A)) |
| w | w | f | f | w | f |
| w | f | f | f | w | f |
| f | w | w | w | w | f |
| f | f | w | f | f | w |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| A | B | ¬B | A ∨ (¬B) | ¬A | (¬A) ∨ B | (A ∨ (¬B)) ∧ ((¬A) ∨ B) |
| w | w | f | w | f | w | w |
| w | f | w | w | f | f | f |
| f | w | f | f | w | w | f |
| f | f | w | w | w | w | w |

f)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| (i) | A | B | ¬A | ¬B | (¬A) ∧ (¬B) | A ∨ B | ¬ (A ∨ B) |
|  | w | w | f | f | f | w | f |
|  | w | f | f | w | f | w | f |
|  | f | w | w | f | f | w | f |
|  | f | f | w | w | w | f | w |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| (ii) | A | B | ¬A | ¬B | (¬A) ∨ (¬B) | A ∧ B | ¬ (A ∧ B) |
|  | w | w | f | f | f | w | f |
|  | w | f | f | w | w | f | w |
|  | f | w | w | f | w | f | w |
|  | f | f | w | w | w | f | w |