1. Add or remove quote marks so that the following sentences are true:
   1. America has seven letters.
   2. I ‘hate’ oranges.
   3. New York is part of New York City.
2. Which of the following truth-tables correspond to which connectives?

|  |  |  |
| --- | --- | --- |
| **p** | **q** | **p \_\_ q** |
| T | T | T |
| T | F | F |
| F | T | T |
| F | F | T |

|  |  |  |
| --- | --- | --- |
| **p** | **q** | **p \_\_ q** |
| T | T | T |
| T | F | F |
| F | T | F |
| F | F | F |

|  |  |
| --- | --- |
| **p** | **\_p** |
| T | F |
| F | T |

|  |  |  |
| --- | --- | --- |
| **p** | **q** | **p \_\_ q** |
| T | T | T |
| T | F | T |
| F | T | T |
| F | F | F |

1. Consider a formula of the form (φ→ψ).
   1. If φ is false, (φ→ψ) is \_\_\_\_\_.
   2. If ψ is true, (φ→ψ)is \_\_\_\_\_.
2. Do construction trees for the following formulas:
3. If p is false, then ( is \_\_\_\_.
4. If p is true, then is \_\_\_\_.
5. **Hard:** For each truth table, find the formula that only has p and q as constituents and has such a truth table.

|  |  |  |
| --- | --- | --- |
| **p** | **q** | **\_\_\_\_\_\_\_\_** |
| T | T | F |
| T | F | F |
| F | T | F |
| F | F | T |

|  |  |  |
| --- | --- | --- |
| **p** | **q** | **\_\_\_\_\_\_\_\_** |
| T | T | T |
| T | F | F |
| F | T | T |
| F | F | F |

1. Determine if the following is a formula of the language: