**Practice Exercises for Mathematical Logic**

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| 1.    | Začátek formuláře

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| --- | --- | --- | --- | --- | --- |
| **p** | **q** | **~p** | **phttps://www.mathgoodies.com/sites/default/files/lesson_images/and.gifq** | **phttps://www.mathgoodies.com/sites/default/files/lesson_images/or.gifq** | **phttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gifq** |
| T | T |  | T | T | T |
| T | F | F |  | T | F |
| F | T | T | F |  | T |
| F | F | T | F | F |  |

Konec formuláře |    |  |  |
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| 2.    | Začátek formuláře

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| **p** | **q** | **~q** | **phttps://www.mathgoodies.com/sites/default/files/lesson_images/and.gifq** | **(phttps://www.mathgoodies.com/sites/default/files/lesson_images/and.gifq)**https://www.mathgoodies.com/sites/default/files/lesson_images/conditional_transp.gif~**q** |
|  | T | F | T | F |
| T | F |  | F | T |
| F | T | F |  | T |
| F | F | T | F |  |

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| 3.    | Začátek formuláře

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| **x** | **y** | **xhttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gify** | **yhttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gifx** | **(xhttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gify)https://www.mathgoodies.com/sites/default/files/lesson_images/and.gif(yhttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gifx)** | **xhttps://www.mathgoodies.com/sites/default/files/lesson_images/biconditional.gify** |
| T | T |  | T | T | T |
| T | F | F |  | F | F |
| F | T | T | F |  | F |
| F | F | T | T | T |  |

Konec formuláře |    |  |

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| 4.    |

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| Which of the following statements from problem 3 is conditional? |
| Začátek formuláře**x****y****xhttps://www.mathgoodies.com/sites/default/files/lesson_images/biconditional.gify**None of the above. RESULTS BOX:    Konec formuláře |

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| https://www.mathgoodies.com/sites/default/files/lesson_images/tab.gif |
| 5.    |

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| Which of the following statements from problem 3 is biconditional? |
| Začátek formuláře**xhttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional_transp.gify****yhttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional_transp.gifx****xhttps://www.mathgoodies.com/sites/default/files/lesson_images/biconditional_transp.gify**None of the above. RESULTS BOX:    Konec formuláře |

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| 6.    | Začátek formuláře

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| **a** | **b** | **ahttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gifb** | **(ahttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gifb)https://www.mathgoodies.com/sites/default/files/lesson_images/and.gifa** | **[(ahttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gifb)https://www.mathgoodies.com/sites/default/files/lesson_images/and.gifa]https://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gifb** |
| T |  | T | T | T |
| T | F |  | F | T |
| F | T | T |  | T |
| F | F | T | F |  |

Konec formuláře |    |  |

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| 7.    |

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| Choose the word that best completes this sentence:The statement in the last column of the truth table in problem 6 is a \_\_\_\_\_\_\_\_\_\_\_\_. |
| Začátek formulářeBiconditionalTautologyDisjunctionNone of the above. RESULTS BOX:    Konec formuláře |

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| 8.    | Začátek formuláře

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| --- | --- | --- | --- | --- | --- | --- |
| **p** | **q** | **~q** | **phttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gif~q** | **phttps://www.mathgoodies.com/sites/default/files/lesson_images/and.gifq** | **~(phttps://www.mathgoodies.com/sites/default/files/lesson_images/and.gifq)** | **(phttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gif~q)**https://www.mathgoodies.com/sites/default/files/lesson_images/biconditional_transp.gif**[~(phttps://www.mathgoodies.com/sites/default/files/lesson_images/and.gifq)]** |
| T | T | F |  | T | F | T |
| T | F | T | T |  | T | T |
| F | T | T | T | F |  | T |
| F | F | T | T | F | T |  |

Konec formuláře |    |  |

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| 9.    |

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| Which two statements from problem 8 are logically equivalent? |
| Začátek formuláře**phttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gif~q and phttps://www.mathgoodies.com/sites/default/files/lesson_images/and.gifq****phttps://www.mathgoodies.com/sites/default/files/lesson_images/and.gifq and ~(phttps://www.mathgoodies.com/sites/default/files/lesson_images/and.gifq)****phttps://www.mathgoodies.com/sites/default/files/lesson_images/conditional.gif~q and ~(phttps://www.mathgoodies.com/sites/default/files/lesson_images/and.gifq)**None of the above. RESULTS BOX:    Konec formuláře |

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| https://www.mathgoodies.com/sites/default/files/lesson_images/tab.gif |
| 10.   |

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| Choose the word that best completes this sentence:The \_\_\_\_\_\_\_\_\_\_\_\_ of two equivalent statements always yields a tautology. |
| Začátek formulářeBiconditionalConjunctionNegationAll of the above. RESULTS BOX:    Konec formuláře |

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