Stanford University
Introduction to Logic

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2.2 Logical Operators

This exercise explores the possibility of writing compound sentences as equivalent sentences using different logical operators. (Use ~ for ¬; use & for ∧; use | for ∨; use => for ⇒; and use <=> for ⇔.)
Note 1: The "Save Answers" function is not implemented for this problem.
Note 2: After you submit your answers, your score is recorded, but your original answers are not saved and will not be displayed.
Note 3: If you experience technical issues with this problem, please test your browser's compatibility by completing this test problem.

Question 1

Write the sentence ($p \Rightarrow q$) into an equivalent form using just the ¬ and ∧ operators.

~(p & ~q)

Question 2

Write the sentence ($p \wedge q$) using just the ¬ and ⇒ operators.

~(p => ~q)

Question 3

Let's add to our language the constants *true* and *false*. The interpretation of *true* is always the truth value *true* and the interpretation of *false* is always the truth value *false*. Write the expression ¬*p* using only *p*, *true*, *false*, and ⇒.

p => false

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