

# **IEOR 215: Homework 3**

## Logic

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## Problem 1

Show that  $p \vee q \rightarrow r \equiv (p \rightarrow r) \wedge (q \rightarrow r)$ .

## Problem 2

Determine whether the following argument is valid:

$\{\neg p \rightarrow r \wedge \neg s, t \rightarrow s, u \rightarrow \neg p, \neg w, u \vee w\} \in F$ .

Given F can you conclude  $t \rightarrow w$ .

This requires using the inference rules in a series of steps. Please label each step clearly and indicate which propositions and inference rules you use.