MATHEMATICAL LOGIC — ASSIGNMENT ONE

(1) Prove that $(A \supset B) = (\neg A \vee B)$.
(2) Show that, if a lattice is distributive then both the laws

$$x \wedge (y \vee z) = (x \wedge y) \vee (x \wedge z)$$
$$x \vee (y \wedge z) = (x \vee y) \wedge (x \vee z)$$

hold.
(3) Show an example of non-distributive lattice. Prove that the distributive law fails on it.

Each question is worth 12 points. The points in all the four assignments will be added together and the result will be divided by 4, and this will be the final result. Remember to mark your answer sheet with your name.

Date: October 31$^{\text{tst}}$, 2018.