HW: Propositional Logic

(1) Indicate the strings that are members of $\mathcal{L}(\Sigma)$, where $\Sigma = \{A, B, C\}$:

_____ A

_____ $B \vee C$

_____ $(B \Rightarrow C)$

_____ $(B \Rightarrow \text{True}) \wedge (\text{False} \Rightarrow \text{True})$

_____ $(B \Rightarrow$

_____ $(B \vee C) \models C$

_____ $(A \wedge B \wedge \neg C)$

_____ $((A \vee B) \wedge (B \vee \neg C))$

_____ $\neg(A \vee B)$

_____ $(A \Rightarrow D)$

_____ $\neg\neg\neg B$

(2) If $\Sigma = \{A, B, C\}$, compute $\mathcal{I}(((A \Rightarrow B) \vee (B \Rightarrow \neg C)))$

(3) Prove $I(\neg(A \vee B)) = I((\neg A \wedge \neg B))$. [This is "DeMorgan's Law"]