MATH 2112 / CSCI 2112
Assignment # 3
Due Wednesday, October 4, 2006

Section 2.4: 24
Section 3.1: 3bc, 5, 18, 45, 47, 49

Use Venn Diagrams to determine whether the following are valid:

1. Every cat has 4 legs.
   Some tables have 4 legs.
   Some things with 4 legs can move.
   $\therefore$ Some cats can move.

2. All banks have money.
   Some rich people have money.
   Anything (or anyone) with money hate poor people.
   $\therefore$ All banks hate poor people.

3. Same premises as above, but conclusion is "All rich people hate poor people".

4. Some integers are perfect squares.
   Some positive numbers are perfect squares.
   Some perfect squares are even.
   $\therefore$ Some integers are positive or some integers are even.

Use rules of inference to show the following argument is valid:

5.

$$\begin{aligned} &\sim a \to (c \to b) \\ &(b \vee c) \to \sim d \\ &d \to (e \to (a \vee b)) \\ &a \vee f \\ \therefore\ &((d \wedge e) \to a) \wedge ((\sim a \wedge c) \to (b \wedge f)) \end{aligned}$$