1. $P \Rightarrow Q$

$L \land M \Rightarrow P$
$B \land L \Rightarrow M$
$A \land P \Rightarrow L$
$A \land B \Rightarrow L$
$C \Rightarrow D$
$C \land M \Rightarrow R$
$P \land E \Rightarrow S$
$C \land F \Rightarrow E$
A
B
C

Knowledge newly added:

L (A, B and $A \land B \Rightarrow L$)
D (C and $C \Rightarrow D$)
P (A, L and $A \land P \Rightarrow L$)
Q ($P \Rightarrow Q$ and P)
M ($L \land M \Rightarrow P$ and L, P)
R ($C \land M \Rightarrow R$, C, M)

No more evidence
for E, F, therefore
no S to be proved

$KB \not\models S$

2.
(a) False
(b) True
(c) False
(d) False

3. (a) $\forall x \; Fish(x) \Rightarrow Mammal(x)$
(b) $\exists x \; Mammal(x) \land intelligent(x)$
(c) $\forall x \; lives(x, NY) \land Owns(x, condo) \Rightarrow Rich(x)$

4. b

5. a