1. Consider the following “Theorem”. Suppose you believe that the “Theorem” is true. How Do You Start the Proof of the “if-then” statement in the “Theorem”? I.e., what is the standard way of starting the proof? I.e., what is the first “step” of the proof? (Of course, be specific.) “Theorem”. If $R$ is an abusive relation on a set $A$ and $S$ is a relation on $A$ which dominates $R$, then blah blah blah.

SOLUTION. [The approach to proving such a statement was reviewed in Lesson HW12, following Problem 1 there. Be sure you know an understand this.]

Proof.
Assume that $R$ is an abusive relation on a set $A$ and $S$ is a relation on $A$ which dominates $R$. ...

[That is how you start the proof: Assume the antecedent, as stated in HW 12 and many times in class.]

2. Suppose you are given a relation $Z$ on a set $A$. Suppose you believe that $Z$ is reflexive on $A$. How Do You Start the Proof of the statement “$Z$ is reflexive on $A$”? I.e., what is the standard way of starting the proof? I.e., what is the first “step” of the proof that $Z$ is reflexive on $A$? (Of course, be specific.)

SOLUTION. [The definition of reflexive for this situation can be written
If $x$ is an element of $A$, then $x Z x$. The approach to proving such a statement was reviewed in Lesson HW12, following Problem 1 there. Be sure you know an understand this.]

Proof.
Assume that $x$ is an element of $A$. ...

[That is how you start the proof: Assume the antecedent, as stated in HW 12 and many times in class.]

3. Consider the following “Theorem”. Suppose you believe that the “Theorem” is true. What would be the standard first two “steps” of the proof? (Of course, be specific.) “Theorem”. If $R$ is an abusive relation on a set $A$ and $S$ is a relation on $A$ which dominates $R$, then $S$ is reflexive on $A$.

SOLUTION. [The approach to proving such a statement was reviewed in Lesson HW12, following Problem 1 there. Be sure you know an understand this.]

Proof.
Assume that $R$ is an abusive relation on a set $A$ and $S$ is a relation on $A$ which dominates $R$. Assume that $x$ is an element of $A$. ...

[For this problem, just copy and paste the answers to Problems 1 and 2 above. This is what was reviewed in Lesson HW12, following Problem 1 there.]