Proof Notebook Problem 3

The Problems:
1. Show that the square of every integer has remainder 0, 1, or 4 upon division by 8.
2. Show $\exists_{x \in \mathbb{R}} \forall_{y \in \mathbb{R}} \exists_{z \in \mathbb{R}} (x^y + z = 0)$.
3. Let x and y be odd integers. If the product xy has remainder 3 upon division by 4, then one of the factors has division 3 upon division by 4.

Please do not do multiple problems: you should have a clear mind for the peer review.
Only use the third problem if you're in a group of three.

Due Dates:

Item	Due Date	Method
Draft 1	Friday, September 19 (10pm)	Blackboard
Peer Review 1	Before 2nd draft	On your own – nothing to turn in
Draft 2	Tuesday, September 23	In class
Draft 3	Friday, September 26 (10pm)	Blackboard
Peer Review 2	Before final version	On your own – nothing to turn in
Final Version	Tuesday, September 30	In class

The peer review process:
1. Schedule a time to meet in pairs or groups of 3. Come to the meeting with draft 1 completed.
2. Person 1 presents their proof on the board; Person 2 analyzes each step:
    1. Is this step intelligible or nonsense?
    2. Does this step say what the Person 1 thinks it says?
    3. Does this step follow from the previous steps?
    4. Is it clear why this step follows?
3. Switch roles and repeat (2).