PROBLEM SOMETHING OF CHAPTER SOMETHING

YOUR NAME HERE

If you want to write something you can just type like this.

If you want a new paragraph, you'll need to skip a line. You can put each sentence on its own line and put as many spaces in as you want: LaTeX ignores most whitespace.

Definition 1. A definition could go here if you wanted.

Proposition 1. *The equation $x^2 - 4 - 2 = 0$ has no integer solutions.*

Proof. Suppose that the equation $x^2-4y-2 = 0$ has an integer solution. Let $a, b \in \mathbb{Z}$ be that solution. Hence $a^2 - 4b - 2 = 0$. Consequently $a^2 = 4b + 2 = 2(2b + 1)$ and so we see that a^2 is even. It follows from earlier work that a is even. By definition (of even) there is an integer c such that $a = 2c$. Hence $a^2 = (2c)^2 = 4c^2 = 2(2b+1)$. Dividing by 2 shows that $2c = 2b + 1$. This is a problem because $2c$ is even but $2b+1$ is odd. We have reached a contradiction; our starting assumption must have been false. Therefore the equation $x^2 - 4y - 2 = 0$ has no integer solutions. □