Math 161—Writing Assignment 07

*Due: Sunday October 21—5:00*PM

Getting Started

1. Get the template for this assignment. Here's how to do it:
   - Go to https://v2.overleaf.com/ (formerly: https://www.sharelatex.com), and **make sure you are logged in**.
   - In a new window, go here:

     https://v2.overleaf.com/read/ksmshdxcrtsc
   - Click on the menu icon in the upper-left and select "Copy Project"
   - When ask for a name, choose something like "Math 161 - WA 07" and click "Copy"
   - When this completes you will be back in your own workspace (instead of mine).
   - After solving the problem(s), type them up using the template.
   - Email me your final draft.
2. Let me know if you have any questions!

1. Let $\mathcal{L}$ be any language, Σ be a set of $\mathcal{L}$-formulas, and θ an $\mathcal{L}$-formula. Prove that if $\Sigma \vdash \theta$, then $\Sigma \vdash \exists x\theta$.
2. Prove that there exists a language $\mathcal{L}$, a set of $\mathcal{L}$-formulas Σ, and an $\mathcal{L}$-formula θ such that $\Sigma \vdash \exists x\theta$ but $\Sigma \nvdash \theta$.

Note: these are the two parts of is Problem 2.7.1 #1.
You will see in the template that I got you started, but please feel free to write it up differently.