

Please complete this worksheet by **September 27th, 2021** by **11:59pm**.

Once you upload a picture of your work ([here](#)), the solutions will become available so you can study for the weekly quizlet, which may draw one problem from this week's worksheets.

Problem 1

Prove $\forall n \in \mathbb{Z}$, n is even if and only if $5n + 3$ is odd. Prove one direction using a direct proof, and one direction using a contrapositive proof.

Problem 2



Prove that if there are n clamholes and $n + 1$ Pipers, then at least two Pipers will go for the same clamhole (*Hint: write down this statement as $p \implies q$, and then write the contrapositive.*).