Submission for the Test Flight Project for Introduction to Mathematical Thinking.

Problem 5:

Proposition: For any $n \in \mathbb{Z}$, at least one of the integers $n + 1$, $n + 2$, or $n + 4$ is divisible by 3.

Proof: Let $n = 3$. Then we see that $3 + 1 = 4$, $3 + 2 = 5$, and $3 + 4 = 7$. None of these are multiples of 3 which shows our initial claim to be false. $\square$