Problem x.yz. Delete this text and write theorem statement here. We can draw the sets $\mathbb{R}$, $\mathbb{Q}$, $\mathbb{I}$, $\mathbb{Z}$, and $\mathbb{N}$. Let's assume our problem was: Prove that:

$$(\forall x \in \mathbb{N}) \left[\sum_{i=0}^{n} i = \frac{n(n+1)}{2} \right]$$

Proof. I will induct on n
Base case (n = 1): $\sum_{i=0}^{1} i = 1 = \frac{1(1+1)}{2} = 1$
Inductive Hypothesis: Assume $\sum_{i=0}^{k} i = \frac{k(k+1)}{2}$ for some $k \in \mathbb{N}$
Inductive Step: [I must show: $\sum_{i=0}^{k+1} i = \frac{(k+1)(k+2)}{2}$]

$$\begin{aligned}
\sum_{i=0}^{k+1} i &= k + 1 + \sum_{i=0}^{k} i && \text{[By definition of series]} \\
&= (k+1) + \frac{k(k+1)}{2} && \text{[By I.H]} \\
&= \frac{(2k+2) + (k^2+k)}{2} \\
&= \frac{k^2 + 3k + 2}{3} \\
&= \frac{(k+1)(k+1)}{2}
\end{aligned}$$

$\therefore$ By the principle of induction, the claim holds for all $n \in \mathbb{N}$

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Proposition x.yz. Let $n \in \mathbb{Z}$.

Disproof. Blah, blah, blah. I'm so smart.

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