



Assignment 3

▼ What is wrong with this argument? Let $H(x)$ be “ x is happy.” Given the premise $\exists x H(x)$, we conclude that $H(\text{Lola})$. Therefore, Lola is happy.

we cannot assume that a specific object, such as Lola, satisfies the predicate based on the rule alone. We need more information to draw that conclusion.

▼ Use a direct proof to show that the sum of two odd integers is even

Denote two odd integers as **2n+1** and **2m+1**, where n and m are any integers.

The sum of these two odd integers is:

$$(2n+1) + (2m+1)$$

Simplifying the expression, we get:

$$2n + 2m + 2$$

$$2(n+m+1)$$

Since n and m are integers, $n+m$ is also an integer. Therefore, we can rewrite the expression as: $2k$, where $k = n+m+1$ and k is an integer.

We have shown that the sum of two odd integers can be written in the form of $2k$

So, the sum of two odd integers is an even number. Thus, we have proved that the sum of two odd integers is even.