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The set of odd integers under the operation of addition denoted as $(O, +)$ is not an abelian group because it fails to satisfy the basic properties required for a group.

A group must be closed under its operation, have an identity element and every element must have an inverse within the set.

The additive identity is 0. Since for any int a , $a + 0 = a$ and $0 + a = a$. But 0 is an even number and therefore not contained in the set of odd numbers, so no identity element exists in this set. Without closure and an identity it is possible for every element to have an inverse within the set.

Although addition of integers is associative and commutative, the failure of closure and the absence of an identity element are enough to conclude that the set of odd numbers under addition doesn't form an abelian group.