Answer to Question #82334, Math / Real Analysis

Question

For a, b belongs to R if a+b=0 then a=-b???

Answer

Yes, for $a, b \in R$ if $a + b = 0$ then $a = -b$

Solution

Given: $a, b \in R$

We have to prove that if $a + b = 0$ then $a = -b$

We need to prove that for every $b \in R$ there is only one additive inverse of b. That is if $a \in R$ with $a + b = b + a = 0$ then $a = -b$

Suppose a and a' are both additive inverse of b. Then,

$a = a + 0$ by additive identity

$= a + (b + a')$ as a' is an additive inverse of b

$= (a + b) + a'$ by associativity of addition

$= 0 + a'$ as a is an additive inverse of b

$= a'$ by additive identity

Hence, proved