

44. The Negative of any odd integer is odd.

Proof:

Let m be any odd integer

1) $m = 2k+1$ for some $K \in \mathbf{Z}$

2) $-m = -(2k+1)$

3) $-m = -2k-1$

4) $-m = -2(-k-1) + 1$

5) Let $p = (-k-1)$

6) $-m = 2p+1$

1) **Definition of odd**

2) **Basic Algebra**

3) **Basic Algebra**

4) **Basic Algebra**

5) **Substitution**

6) **Substitution**

By the definition of odd, $-m$ is odd

QED