

## Proof By Cases

Use a proof by cases to show:

For any integer  $n$ , the number  $n^3 - n$  is even.

If finish, please sit and work on:

If  $k$  is a multiple of 4, then  $\exists n \in \mathbb{N}$ :

$$k = 1 + (-1)^n(2n - 1)$$