

Statement: The sum of any five consecutive integers is divisible by 5 (without remainder).

(Idea: 5 consecutive integers can be represented as  $n-2, n-1, n, n+1, n+2$ . Add them up and you'll get  $5n$  which is divisible by 5)

proof:

for any integer  $n$ , we have

$$(n-2) + (n-1) + (n) + (n+1) + (n+2) = 5n$$

$5n$  is divisible by 5

$\therefore$  sum of five consecutive integers is divisible by five