2. Say whether the following is true or false and support your answer by a proof: The sum of any five consecutive integers is divisible by 5 (without remainder).

Claim: $\forall a \in \mathbb{Z}[5|a+(a+1)+(a+2)+(a+3)+(a+4)]$

Proof: Take an arbitrary $a \in \mathbb{Z}$. By algebra we can derive from the expression

$a+(a+1)+(a+2)+(a+3)+(a+4)$

$5a+10$

$5(a+2)$

which is divisible by 5 proving the original claim. □