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).

PROOF Assume the above statement is true.

- If the sum of any five consecutive integers - call it s - is divisible by 5, then, there is an integer p such that $s = 5$p.
- Consider an integer n. The next four consecutive integers are: $n+1$, $n+2$, $n+3$, and $n+4$.
- The sum of these five consecutive integers, $s = n + (n+1) + (n+2) + (n+3) + (n+4)$, which is equal to $5n + 10$.
- Simplifying, $s = 5(n+2)$. $(n+2)$ is an integer - call it p. So, $s = 5p$. Therefore, s is divisible by 5.

Hence, the statement is true. This completes the proof. ■