Introduction to Mathematical Thinking

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Question 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).

Answer

1. Let n the first of five consecutive integers
2. Summing the integers...

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

$$= 5n + 10$$

$$= 5(n + 2)$$

$\therefore$ since $5(n + 2)$ is divisible by 5, the given statement is *TRUE*.