Max Gebski - Answers to Test Flight Problem Set

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).

The statement is true. Lets name the first number of the five consecutive integers k where $k \in \mathbb{Z}$. Then the five integers are:

- k
- k + 1
- k + 2
- k + 3
- k + 4

We we sum these we get:

$k + (k + 1) + (k + 2) + (k + 3) + (k + 4) = 5k + 10$

Because 5k is a multiple of five and (5 | 10) the sum of any five consecutive integers is divisible by 5.