Advanced Higher Maths
SQA 2018 Paper
Question 9

Prove directly that:

(a) the sum of any three consecutive integers is divisible by 3; **2**

(b) any odd integer can be expressed as the sum of two consecutive integers. **1**

Answers:

(a) Model the integers as k, $k + 1$ and $k + 2$, say, where $k \in \mathbb{Z}$. Express their sum as $3(k + 1)$.

(b) Model the odd number as $2k + 1$, say ($k \in \mathbb{Z}$). Express as $k + (k + 1)$.