AI1110 Assignment 1

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March 28, 2022

Q11 (b)

The product of two consecutive natural numbers which are multiples of 3 is equal to 810. Find the two numbers.

Solution

Let the two consecutive natural numbers which are multiples of 3 be $3n$ and $3n+3 \quad \exists\, n \in \mathbb{N}$

According to the question:

$3n(3n+3) = 810$
$\Rightarrow 9n(n+1) = 810$
$\Rightarrow n(n+1) = 90$
$\Rightarrow n^2 + n - 90 = 0$
$\Rightarrow (n+10)(n-9) = 0$
$\Rightarrow n = -10 \quad or \quad n = 9$

discarding $n = -10$ as $n \in \mathbb{N}$

$\Rightarrow n = 9$
$\Rightarrow 3n = 27$
$\Rightarrow 3n + 3 = 30$
The two numbers are:

$$\boxed{27, 30}$$