

1,2,3,4

5,6,7,8

9,10,11,12

1st x 4th = 4  
2nd and 3rd = 6

1st x 4th = 40  
2nd x 3rd = 42

1st x 4th = 108  
2nd x 3rd = 110

All of the above shows that when having 4 consecutive numbers, the product of the 2 middle numbers will always be greater by 2 than the product of the 1st and 4th numbers.

In algebraic form:  $n, n + 1, n + 2, n + 3$

Formula:  $n(n + 3) = (n + 1)(n + 2) - 2$

Simplified:  $n^2 + 3n = n^2 + 3n$

For any number of consecutive numbers

$x =$  total number of consecutive numbers

$y =$  the difference between the two products (1st  $\times$  the last and 2nd  $\times$  the penultimate)

**Eg.**

If we use all the consecutive numbers between and including 1 and 154.

$x = 154$

$1 \times 154 = 154$  (1st  $\times$  the last)

$2 \times 153 = 306$  (2nd  $\times$  the penultimate)]

$y = 306 - 154 = 152$

Proving that  $x - 2 = y$