Maths Challenge – Multiplication answer

This represents the multiplication of a 4-figure number by 3.

The whole calculation uses each of the digits $0-9$ once and once only.

The 4-figure number contains three consecutive numbers, which are not in order. The third digit is the sum of two of the consecutive numbers.

The first, third and fifth figures of the five-digit product are three consecutive numbers, again not in order. The second and fourth digits are also consecutive numbers.

Can you replace the stars in the calculation with figures?

Answer: The only three consecutive numbers that can go in the 4-figure number are 4, 5 and 6. 7, 8 and 9 are too big. The sum of any two of these is greater than 9. For example:
7 + 8 = 15
8 + 9 =17
9 + 7 = 16
0, 1 and 2 cannot go on the first line because:
0 x 3 = 0 (same number twice)
1 x 3 = 3 (same number twice)
Therefore the third number must be 9 (5 + 4) because 6 + 5 and 6 + 4 are both too big.
The fourth number in the 4-figure number cannot be 5 as 5 x 3 = 15 (repeat digit 5).
The fourth number also cannot be 6 as then we would get 8 twice, so it must be 4.
So, the last two digits must be 5 then 6 so they're not in order.

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    5 6 9 4
x           3

  1 7 0 8 2
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