Adding Sequences in the Form: $1^2 + 2^2 + \ldots + n^2$:

A. This sequence can be solved by the following:

$$\sum_{i=1}^{n} i^2 = 1^2 + 2^2 + \ldots + n^2 = \frac{n \cdot (n+1) \cdot (2n+1)}{6}$$

1. If one of the numbers is not divisible by 6, then one of the numbers will be divisible by 3 and another will divisible by 2.
2. Simplify the expression.
3. Multiply the remaining numbers.

Ex [1] $1^2 + 2^2 + \ldots + 10^2 =$__________.

a) According to the expression this simplifies to: $^{10(11)(21)}/_6$ which we can simplify to 5(11)(7) = 385. See *Multiplying By 11*.

b) The answer is 385.

Ex [2] $1^2 + 2^2 + \ldots + 12^2 =$__________.

a) According to the expression this simplifies to: $^{(12)(13)(25)}/_6$ which we can simplify to 2(13)(25) = 26 x 25 = 650. See *Multiplying by 25*.

b) The answer is 650.

Ex [3] 1 + 4 + 9 +...+ 225 =__________.

a) Notice this ends in 15^2.

b) According to the expression this simplifies to: $^{(15)(16)(31)}/_6$ which we can simplify to 5(8)(31) = 40 x 31 = 1240.

c) The answer is 1240.