Group Proof

Conjecture: The numbers that result from evaluating 3a+5b when a,b≥0 are all positive integers with the exception on 1,2,4 and 7.

Proof

This shows that you cannot get the numbers 1,2,4 and 7

- 3(1) + 5(0)

3+0=3 this is the smallest possible number you can get

- 3(0) + 5(1)

0+5=5 which is the closest number to 4 that you can get

- 5(1) + 3(1)

5+3=8 this is the closest number to 7 that you can get

In every single set of tables, the solutions to the equations increase by 3. In each set of tables, you have to substitute "B" for either 1, 2 or 3. For each separate table, your "B" has to remain constant to either 1,2 or 3. While "B" stays consistent, your "A" must increase by one digit in each equation. The solutions in each separate table increase by 3. As a result of them starting at different numbers and increasing by 3, that is how you can get the infinite amount of numbers as your solution.

3(1) + 5(3) = 18
3(2) + 5(3) = 21
3(3) + 5(3) = 24
3(4) + 5(3) = 27
3(5) + 5(3) = 30
3(6) + 5(3) = 33
3(7) + 5(3) = 36
3(8) + 5(3) = 39
3(9) + 5(3) = 42

3(1) + 5(2) = 13
3(4) + 5(2) = 22
3(5) + 5(2) = 25
3(6) + 5(2) = 28
3(7) + 5(2) = 31

3(1) + 5(1) = 8
3(2) + 5(1) = 11
3(3) + 5(1) = 14
3(4) + 5(1) = 17
3(5) + 5(1) = 20
3(6) + 5(1) = 23
3(7) + 5(1) = 26
3(8) + 5(1) = 29
3(9) + 5(1) = 32
3(10) + 5(1) = 35