2301 COL 202 Tutorial 3.4

Anubhav Pandey

TOTAL POINTS

2 / 2

QUESTION 1

1 Problem for Group 4 2 / 2

+ 1 pts Partially Correct

✓ **+ 2 pts** *Correct solution*

+ 0 pts Wrong solution

COL 202 TUTORIAL

Tutorial 3, Group 4

ANUBHAV PANDEY
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Group 4
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SOLUTION : Problem 4

Proof using the well-ordering principle. First we note that,

8 = 5 + 3;
9 = 3x3;
10 = 5 x 2;

Which, means that 8,9,10 can be represented as a sum of non-negative integer multiples of 3 and 5.
Now let's assume that there exists a non-empty subset C::= {x: x greater than 10 & x != 3a + 5b,where a,b are non-negative integer }

So by well-ordering principle, there exists a s belongs to C,and s is the smallest element of C.
So, s-3 does not belong to C, as s is the smallest element.
Which means we can find a,b in whole numbers such that

s-3 = 3a+5b
but it would mean that:

s = 3(a+1)+5b

This is a contradiction, therefore C is empty.
Therefore all elements greater than or equal to 8 can be written as the sum of nun negative integral multiples of 3 and 5.

1 Problem for Group 4 **2 / 2**

+ 1 pts Partially Correct

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+ 0 pts Wrong solution