Math 1190 Quiz #1

Problem 1: The sequence of natural numbers is partitioned into groups as shown. What is the sum of the integers in the n^{th} group?

$$(1), (2,3), (4,5,6), (7,8,9,10), (11,12,13,14,15), (16,17,18,19,20,21), \ldots$$

Problem 2: Given $n \geq 1$, show that the integer $2^{2^n} - 1$ has at least n distinct prime divisors.

Problem 3: Show that every positive integer is the sum of integers of the form $2^s 3^t$ such that no summand divides another.

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