Class Problem
Math 2513
Tuesday, July 12

PROBLEM. How many "words" can be formed using the letters from $AAAABBC$ if:
  (a) the words all have length 7?
  (b) the words all have length 6?
  (c) the words all have length 3 or less?

COMMENT: For part (c), consider the "empty word" to be a word of length 0 (and the ONLY word of length 0).

ANSWERS (without explanation):

(a) The number of "words" of length 7 which can be formed using the letters from $AAAABBC$ is

$$\binom{7}{4,2,1} = \frac{7!}{4!2!1!} = 105.$$

(b) The number of "words" of length 6 which can be formed using the letters from $AAAABBC$ is

$$\binom{7}{4,2,1} = \frac{7!}{4!2!1!} = 105.$$

(c) The number of "words" of length 3 which can be formed using the letters from $AAAABBC$ is 31 (including the empty word).