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1.(1 pt) A fair die is rolled 19 times. What is the expected sum of the 19 rolls?

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2.(1 pt) 18 people arrive separately to a professional dinner. Upon arrival, each person looks to see if he or she has any friends among those present. That person then either sits at the table of a friend or at an unoccupied table if none of those present is a friend. Assuming that each of the  $\binom{18}{2}$  pairs of people are, independently, friends with probability 0.7, find the expected number of occupied tables.

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3.(1 pt) Consider  $n = 38$  independent flips of a fair coin. Say that a changeover occurs whenever an outcome differs from the one preceding it. For example, if  $n = 6$  and the outcome is  $THTTHT$ , then there is a total of 4 changeovers. Find the expected number of changeovers for  $n = 38$ .

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4.(1 pt) If  $E[X] = -2$  and  $\text{Var}(X) = 1$ , then  
 $E[(1 + 4X)^2] =$  \_\_\_\_\_  
and  
 $\text{Var}(2 + 4X)^2 =$  \_\_\_\_\_ .