Positive and zero subsums of a (positive) sum

Answer the following questions (you might first understand them and make a guess, then read the accompanying paper and give the exact answer; no proof is required)

1. Given $a_1+a_2+ \ldots+a_9> 0$, what is the least number of positive subsums (sums of any number of these 9 numbers)? (comment: of course we might just give all positive numbers and then all subsums will be positive; so, rather, we are looking for possible solutions with as few positive subsums as possible.)
2. Given $a_1+a_2+ \ldots+a_9> 0$, what is the least number of positive 3 element subsums (sums of any 3 of these 9 numbers which are positive) ?
3. Given $a_1+a_2+ \ldots+a_9 +a_{10}> 0$, what is the least number of positive 3 element subsums (sums of any 3 of these 10 numbers which are positive) ?
4. Given $a_1, a_2,\ldots a_8$, such that $a_1 \neq 0$ (and no assumption about the sum or the value of the remaining a_i's), what is the maximum number of 0 subsums (sums of any number of these 8 numbers equal to 0)?
5. Given $a_1, a_2,\ldots a_8$, such that $a_i \neq 0$ (i=1,2,…,8) (and no assumption about the sum), what is the maximum number of 0 subsums (sums of any number of these 8 numbers equal to 0)?
6. Given $a_1, a_2,\ldots a_8$, such that $a_1 \neq 0$ (and no assumption about the sum or the value of the remaining a_i's), what is the maximum number of 4-element 0 subsums (sums of any 4 of these 8 numbers equal to 0)?
7. Given $a_1, a_2,\ldots a_6$, such that $a_1 \neq 0$ (and no assumption about the sum or the value of the remaining a_i's), what is the maximum number of 4-element 0 subsums (sums of any 4 of these 6 numbers equal to 0)?
8. Given $a_1, a_2,\ldots a_{10}$, such that $a_1 \neq 0$ (and no assumption about the sum or the value of the remaining a_i's), what is the maximum number of 4-element 0 subsums (sums of any 4 of these 10 numbers equal to 0)?