1) How many ten-bit strings begin with 1100?

2) How many 5-card poker hands contain a four of a kind? (A four of a kind is all 4 cards of one rank, and one card of a different rank)

3) How many nonnegative integer solutions does the equation below have?

$$x_1 + x_2 + x_3 + x_4 + x_5 = 38$$