Name ___Solutions_____Discrete II, Spring 2017, Quiz 2

1) Find the number of solutions to the equation below, where each x_i is a nonnegative integer.

$$x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 = 48$$

$$\binom{48+6}{48} = \binom{48+6}{6}$$

(It's a stars and bars problem if you think about it the right way)

1) Given a standard deck of playing cards, what is the probability of drawing a 4-of-a-kind? A 4-of-a-kind consists of 4 of the same card, and one other card, such as JJJJQ.

$$\frac{13 \cdot 12 \cdot \binom{4}{4} \cdot \binom{4}{1}}{\binom{52}{5}}$$