quiz 10
math2228
u new haven
fri, 25 oct

name: Solution

1 (4 points). What's wrong with the following scenario:

If you toss a fair coin three times and get heads all three times, then the probability of getting a tail on the next toss is much greater than one-half.

2 (4 points). Conisder the following situation:

In blackjack, you are dealt two cards and examine the total points X on the cards (face cards are 10 points). You can choose to be dealt another card and compee based on the total points Y on all three cards.

Are the random variables X and Y independant? Justify your answer.

1) Each coin toss is independent, meaning that the outcomes of earlier tosses has no effect on the current toss. Therefore, $P(T+1C) = 0.5$ even on this 4th toss.

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2) X & Y are not independent. For example, if the probability of $Y=21$ depends on X. If $X=4$, then $P(Y=21 \mid X=4)=0$, but if $X=11$, then $P(Y=21 \mid X=11) \neq 0$.