

MATH 5652: Homework 6

(6.1, 6.8, 6.18 in Ch 6-Brownian Motion, and a. below)

a. Two teams A and B are playing in the NBA finals, and you can make bets with 3 of your friends as to who is going to win. Your friends are offering you bets that have the following payoff per \$1 (do not subtract \$1 from the matrix entries):

	team A wins	team B wins	a draw
Bet 1	\$ 0	\$ 1	\$ -0.5
Bet 2	\$ 2	\$ 2	\$ -4
Bet 3	\$ 0.5	\$ -1.5	\$ 0

If you can buy any amount of these bets from your friends (even a negative amount so that you would be selling the bet to a friend), is there an arbitrage opportunity in this “market” of bets? In other words, is it possible for you to buy/sell some amounts of each bet so that no matter what happens in the NBA finals you will not lose any money, and for some outcome of the game you will make a profit?