

Finance 30210
Quiz #7

Name _____

Section _____

1) Consider the following game (Player one's payoffs are in bold):

		Player Two	
		Cooperate	Cheat
Player One	Cooperate	\$15 \$15	\$0 \$10
	Cheat	\$10 \$0	\$15 \$15

- a) What is each player's optimal strategy?
- b) Suppose it is known that player two will cooperate, on average, 50% of the time. If player one knows this, how should she respond?
- c) Can a strategy of cooperating 50% of the time be a Nash equilibrium to this game? Explain.

If player two cooperates, player one should cooperate

If player two cheats, player one should cheat.

Player two has the same strategy.

If player two cooperates 50% of the time, we can calculate player one's expected gain from both cheating and cooperating:

$$\text{Cooperate: } (.50)(\$15) + (.50)(\$0) = \$7.50$$

$$\text{Cheat: } (.50)(\$10) + (.50)(\$15) = \$12.50$$

Player one should always cheat – it pays a higher expected return.

If player two cooperates 50% of the time, player one will always cheat, but if player one always cheats, then player two's strategy of cooperating 50% of the time is no longer optimal (he should always cheat).