

Chapter 13 Q and A without Answers

1. Your economics instructor decides to assign a two-student project. We will assume that both students are interested in maximizing their happiness.

Your partner

		Work hard	Work less hard
You	Work hard	Grade = A, but you had to work 10 hours. Happiness = 7/10	Grade = A, and you only worked 5 hours. Happiness = 9/10.
	Work less hard	Grade = A, but you had to work 15 hours. Happiness = 4/10	Grade = B, but you only worked 5 hours. Happiness = 6/10.

What is your dominant strategy?

- A. Work hard
- B. Work hard, only if your partner works hard
- C. Work less hard
- D. Work less hard, only if your partner works less hard

2. Trade agreements encourage countries to curtail tariffs so that goods can flow across international boundaries without restrictions. Using the following payoffs determine the Nash equilibrium for these two countries?

		China	
		Low tariffs	High Tariffs
United States	Low tariffs	China gains \$50 billion U.S. gains \$50 billion	China gains \$100 billion U.S. gains \$10 billion
	High tariffs	China gains \$10 billion U.S. gains \$100 billion	China gains \$25 billion U.S. gains \$25 billion

- A. Low tariff for the U.S., low tariff for China.
 - B. Low tariff for the U.S., high tariff for China.
 - C. High tariff for the U.S., high tariff for China.
 - D. High tariff for the U.S., low tariff for China.
3. Which is the best example of a zero-sum game?
- A. Playing poker
 - B. The value meal you buy from Wendy's
 - C. A riot in downtown 6th Avenue after a big football win over OU.
 - D. A UT t-shirt you buy at the bookstore.
4. In the prisoner's dilemma which outcome is the dominant strategy?
- A. seek legal advice
 - B. lie to the police and make sure you implicate an innocent third party.
 - C. keep quiet and don't tell the cops anything.
 - D. rat out your partner to avoid jail time.

5. A small town has only one pizza place, The Pizza Factory. A small competitor, Perfect Pies, is thinking about entering the market. The profits of these two firms depends on whether Perfect Pies enters the market and whether The Pizza Factory – as a price leader – decides to set a high or low price.

		Perfect Pies	
		Enter	Stay out
The Pizza Factory	High price	Perfect Pies makes \$10,000 The Pizza Factory makes \$20,000	Perfect Pies makes \$0 The Pizza Factory makes \$50,000
	Low price	Perfect Pies loses \$10,000 The Pizza Factory makes \$10,000	Perfect Pies makes \$0 The Pizza Factory makes \$25,000

What is the dominant strategy of The Pizza Factory?

- A. keep its price high
- B. keep its price low
- C. keep its price high only if Perfect Pies enters the market
- D. The Pizza Factory does not have a dominant strategy.

6. What is the dominant strategy in Rock, Paper, Scissors?

- A. Always choose rock.
- B. Choose rock when you partner chooses scissors, scissors when they choose paper, and paper when they choose rock.
- C. RPS does not have a dominant strategy.
- D. Try to outguess your opponent.

7. Which of the following outcomes is the NASH equilibrium?

		Freaky Cat	
		Woof	Meow
Mad Dog	Woof	5, 15	15, -5
	Meow	-5, 0	10, 10

- A. Mad Dag and Freaky Cat both woof
- B. Mad Dog and Freaky Cat both meow
- C. Mad Dog woofs and Freaky Cat meows
- D. Freaky Cat woofs and Mad Dog meows

8. Which of the following is the best example of a zero-sum game?

- A. your laptop gets stolen
- B. global warming
- C. you buy a ticket home to see your family

9. Which is the best example of an oligopoly?

- A. The sole gas station at a stop along a rural highway
- B. Coca-Cola and Pepsi
- C. Lettuce growers at a farmers' market
- D. A part-time Uber driver

10. As the owner of a small restaurant should you be more concerned about the cleanliness of your restroom or kitchen?

- A. The dominant strategy is to clean the restrooms more often than the kitchen.
- B. The dominant strategy is to clean the kitchen more often than the restrooms.
- C. The dominant strategy is the clean both the restrooms and the kitchen.
- D. There is no dominant strategy, you should clean the tables, floors, restrooms, kitchen, and maintain a nice outside appearance always in order to attract customers.

11. The Nash equilibrium occurs when

- a. Neither player has an incentive to switch their strategy given what the other player is doing.
- b. Both players earn the largest possible payoffs.
- c. Both players experience a prisoner's dilemma
- d. When the combined profits are maximized.

12. Because consumers have _____ about products this leads oligopolies to compare their products to more highly rated brands.

- a. mutual interdependence
- b. incomplete information
- c. high barriers
- d. monopoly power

13. Which of the following is an example of the prisoner's dilemma in everyday life?

- a. Not making up your bed
- b. Not paying back a loan from your parents
- c. Not leaving a tip at an out-of-town restaurant.
- d. Not earning enough money to afford to pay your rent.

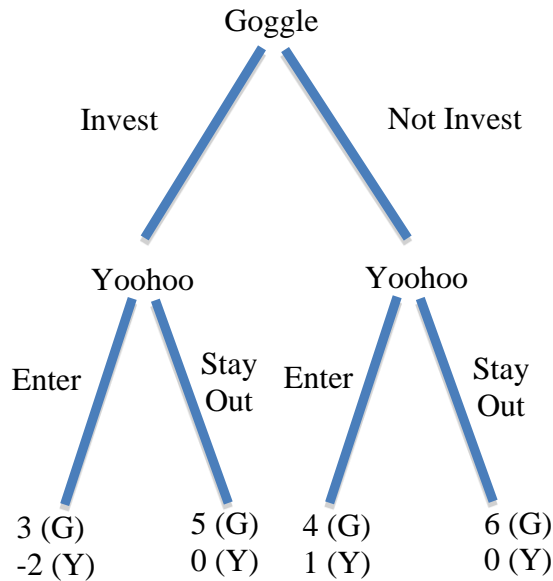
14. If you want to encourage someone to cooperate with you in the long run you should

- a. find the Nash equilibrium.
- b. deploy the dominant strategy.
- c. use tit-for-tat.
- d. be cooperative.

15. Suppose that Lance and Eddy are the two top cyclists in the world. Both are scheduled to compete in an upcoming cycling competition in which the winner will receive \$100,000 in prize money while the rest of the competitors will receive nothing. Both cyclists are very talented, but they can increase their chances of winning by doping (i.e. taking performance enhancing drugs). The cost to each of doping is \$25,000 (this includes both the health costs and the expected damage to their reputation if they are caught). If both cyclists dope or if both cyclists don't dope, then each has a 50 percent change of winning the race. On the other hand, if only one of them dopes, then the one who dopes will win the race for sure.

- a. Write down the expected payoff matrix for this game, if both Lance and Eddy make their decisions to dope simultaneously.
- b. Are any strategies dominated? If so, which?
- c. What is the Nash equilibrium of this game?
- d. Is this game a prisoner's dilemma? Explain.

16. Suppose that Goggle is the only firm that provides internet search services, but a second firm, Yoohoo, is considering entering the market. Prior to Yoohoo's decision about whether to enter the market, suppose Goggle must decide whether to make a costly investment to improve the quality of its own product. Suppose the decision tree for this game can be written as follows:



- What is the equilibrium outcome of this game?
- If Yoohoo could make a credible commitment to either Enter or Stay Out when its turn comes, what would it do?

17. Suppose Ishmael and Santiago are the only two fishermen who fish in Lake Hardin. Both men must choose between either fishing for 20 hours a week or 40 hours per week. If both men choose to fish for 20 hours a week, then they can each catch \$3000 worth of fish per week. If both men choose to fish for 40 hours a week, then they can each catch \$2000 worth of fish per week. If Santiago fishes for 40 hours a week and Ishmael fishes for 20 hours a week, then Santiago can catch \$4000 worth of fish per week and Ismael can catch \$1000 worth of fish per week. If Ishmael fishes for 40 hours a week and Santiago fishes for 20 hours a week, then Ishmael can catch \$4000 worth of fish per week and Santiago can catch \$1000 worth of fish per week.

- Construct the payoff matrix for this situation. Within each cell, be sure to indicate to whom each payoff refers.
- What is the Nash equilibrium of this game?
- Is this game a prisoner's dilemma? Why or why not?
- Give one possible explanation for why Santiago's payoff declines by \$2000 when Ishmael goes from fishing 20 hours per week to 40 hours per week
- Suppose Ishmael and Santiago play this game repeatedly every week. Describe a strategy that might be able to sustain the socially optimal outcome.

18. Consider a market with demand curve given by $P=35-Q$. The marginal cost of production is constant and equal to the average total cost of production $MC = ATC = \$5$.

- What must be true about the firm's fixed costs? Explain.

- b. If the market is monopolized by one firm, how many units will be sold? What price will the monopolist charge? What will be the monopolist's profit?
- c. Explain why this outcome isn't efficient.
- d. If the monopolist can perfectly price discriminate, how many units will be sold and at what price will he sell the last unit?
- e. If another identical firm were to enter the market and the two firms were able to successfully collude, what would be the profit maximizing level of output for each firm if they each agreed to produce half the total quantity demanded? What price would they charge? How much profit would each firm make?
- f. How much profit would each firm make if one of them continues to charge the price agreed upon in part e while the other charges \$1 less than the price agreed upon in part e?
- g. Assuming that each firm would produce half the total quantity demanded in the market, how much profit would each firm make if they both decided to charge \$1 less than the price agreed upon in part e?
- h. Suppose firms have two strategies available to them. They can either charge the price agreed upon in part e or they can charge \$1 less than this price. Is charging \$1 less than the price agreed upon in part e a dominant strategy? Explain.
- i. In the long run, what would you expect the price in this market to be?

19. Rachel and Joey are two students who are dating. Before they left for class this morning, they decided to meet for dinner in the evening. After their last class, they go home and get ready for their date. Unfortunately, although they both remember the time—7:00 p.m.—neither of them can remember where they agreed to meet: Clementine or Beyond. Also, there is no way for them to contact each other before 7:00 p.m.

Where should they go? Let's assume that Joey prefers Clementine to Beyond, but Rachel prefers Beyond to Clementine. Joey loves Rachel, however, so he would rather be with her at Beyond than by himself at Clementine. Rachel loves Joey, so she would rather be with him at Clementine than by herself at Beyond. The figure below is the payoff matrix, where the payoffs are measured in utils (happy points).

		Rachel	
		Beyond	Clementine
Joey	Beyond	3 5	0 0
	Clementine	1 1	5 3

What is Joey's dominant strategy?

What is Rachel's dominant strategy?

What is the Nash equilibrium?

20. Use the matrix below to answer the following questions:

		Larry	
		Confess	Keep quiet
Keisha	Confess	12 years in jail 12 years in jail	32 years in jail Goes free
	Keep quiet	Goes free 32 years in jail	1.5 years in jail 1.5 years in jail

- What is Keisha's dominant strategy? Explain
- What is Larry's dominant strategy? Explain
- What is the Nash equilibrium in this situation? Explain.
- Is the Nash equilibrium Pareto optimal? Why/why not?