

Principles of Microeconomics

Questions for Tutorial Week 12

Chapter 13

1. In *The Dark Knight*, the Joker (played by the late Heath Ledger) rigs two full passenger ferries to explode at midnight and tells the passengers that if they try to escape, the bomb will detonate earlier. To complicate matters, one of the ferries is filled with civilian passengers and includes a number of children, while the other ferry is transporting prisoners.

Each ferry is given the chance to save itself by hitting a detonator button attached to the other ferry. The Joker's plan sets up a prisoner's dilemma between the two boats and an ethical experiment. Are the lives of those on the civilian boat worth more than those of the prisoners?

You can find the clip in the Week 12 Tutorial folder on Moodle.

- A) What is the dominant strategy of the people on the civilian boat?
- B) What is the dominant strategy of the people on the prisoner ferry?
- C) What actually happens?

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

		Jane	
		Confess	Keep quiet
John	Confess	10 years in jail 10 years in jail	25 years in jail Goes free
	Keep quiet	Goes free 25 years in jail	1 year in jail 1 year in jail

- A) What is John's dominant strategy? Explain
- B) What is Jane's dominant strategy? Explain
- C) What is the Nash equilibrium in this situation? Explain.
- D) Is the Nash equilibrium Pareto optimal? Why/why not?

3. The following table shows two firms in a single-stage game. Each firm makes its decision without knowledge of the other firm's decision. The payoffs for each firm represent economic profits, and each firm strictly prefers more economic profit than less.

		Pepsi	
		Advertise	Does Not Advertise
Coca-Cola	Advertise	\$50 million \$50 million	\$37.5 million \$75 million
	Does Not Advertise	\$75 million \$37.5 million	\$67.5 million \$67.5 million

- A) What is Coca-Cola's dominant strategy?
- B) What is Pepsi's dominant strategy?
- C) What is the Nash equilibrium of this game?

4. The following payoff matrix depicts the possible outcomes for two players involved in a game of volleyball. At this point in the game, the ball has just been hit to Deidra, and she chooses whether to hit right or hit left. At the same time, Ashley chooses whether to jump right (Deidra's right) or jump left (Deidra's left). If a player receives a payoff of 1, the player wins the point; if the player receives a payoff of -1, the player loses the point.

		Ashley	
		Jump right	Jump left
Deidra	Hit right	1 -1	-1 1
	Hit left	-1 1	1 -1

- A) What is Deidra's dominant strategy in this game?
- B) What is the Nash equilibrium in this game?

5. Watch this clip from Big Bang Theory. You will find it in the Week 12 Tutorial folder on Moodle.

Is there a dominant strategy in rock-paper-scissors-lizard-Spock? Why do the guys always answer Spock?

6. Facebook is by far the largest social-networking website in the world. Explain how network externalities help Facebook maintain its position as market leader.

Chapter 16

1. Fill in the missing information in the table below:

Number of cookies	Total utility of cookies	Marginal utility of cookies	Number of pretzels	Total utility of pretzels	Marginal utility of pretzels
0	0		0	0	
1	25		1	10	
2	40		2	18	
3	50		3	24	
4	55		4	28	
5	55		5	30	
6	50		6	30	

A) When does this consumer experience diminishing marginal utility for cookies? For pretzels?

2. The way to maximise utility is to set the per-dollar marginal utility of each good equal to each other. True/false? Explain your answer.

3. You have \$36 to spend for a party. What combination of pizzas should you buy in order to maximise your utility?

Number of Dominos pizzas purchased	MU from Dominos Pizza (\$4 large)	MU / P for Dominos	Number of Pizza Hut pizzas purchases	MU from Pizza Hut Pizza (\$8 large)	MU / P for PH
1	20		1	32	
2	16		2	16	
3	8		3	8	
4	4		4	6	
5	2		5	4	

4. If you have \$12 to spend, what is the optimum consumption bundle?

Number of sandwiches	MU from sandwiches (\$4)	MU / P for sandwiches	Number of coffees	MU from coffee (\$2)	MU / P for coffee
1	50		1	20	
2	25		2	15	
3	10		3	10	
4	6		4	5	
5	0		5	0	

5. Watch this clip from the documentary: “Super Size Me”. You will find it in the Week 12 Tutorial folder on Moodle.

A) How does this eating at McDonalds illustrate the diamond-water paradox?

B) How does eating at McDonalds contrast with fine dining? Hint: think marginal v total utility.

6. Suppose that Gina’s marginal utility from drinking milk is 5 utils per litre and her marginal utility from drinking coffee is 10 utils per litre. If the price of milk is 50 cents per litre and the price of coffee is 80 cents per litre, is Gina maximising her utility? If so, explain why. If not, explain how she should change her spending to increase her utility.