

Intro Microeconomics | Homework D

Due Friday Oct. 21

Homework is designed to both test your knowledge and challenge you to apply familiar concepts in new applications. Answer clearly and completely; show your work so I can understand your thought process for partial credit; you are welcomed and encouraged to work in groups as long as your work is your own.

Question 1 | Study Room Dynamics

Students in Ravenclaw and Hufflepuff share a secondary study room, which is open to all students from both houses at all hours. Every year the heads of house from both houses organize sharing cleaning duties. Cleaning improves the usefulness of the study room for members of both houses, but the chore is inconvenient. If both houses clean, the study room is a fantastic resource. But cleaning takes precious time away from studying, so neither house prefers doing it. The following matrix represents the benefits of each possible strategy combination.

		Hufflepuff	
		Clean	Don't Clean
Ravenclaw	Clean	10, 10	6, 12
	Don't Clean	12, 6	8, 8

a) Ravenclaw

What is Ravenclaw's best response?

b) Hufflepuff

What is Hufflepuff's best response?

c) Nash Equilibrium

Does this game have a Nash equilibrium? If yes, what is the Nash equilibrium?

Question 2 | The Dumbledor Memorial

Three Dumbledores were considering whether to install a memorial of their brother Albus in their town. The individual marginal benefits for three Dumbledors is below.

Aurelius	Aberforth	Ariana
75	10	20

Any of the three are able to enjoy the statue, regardless of whether they helped pay for it. And it costs 90 galleons per year to operate and maintain the memorial.

a) Continued Funding

There's an endowment to fund the memorial for a year. How many of the Dumbledores value this memorial enough to visit? Simply considering their financial interests, how many Dumbledores will contribute to the memorial's continued operation?

b) The Referendum

Aurelius proposes a referendum that would raise residents' taxes by 30 galleons per year, and puts it to a vote. If each Dumbledor voted in their own private interests, would this referendum receive a majority vote?

c) Marginal Social Benefit

What is the marginal social benefit from the memorial?

d) Efficiency

If the referendum passed, would it lead to an efficient outcome?