

# Econ 0100 | Classwork D2

*Due in Recitation*

## Question 1 (of 2) | Date Night

Hagrid and McGonagall planned a date night, but had forgotten to decide between two locations: the Leaky Cauldron or Hog's Head Pub. The time for the date was quickly approaching but neither knew where the other was going and didn't have an owl with which to communicate. McGonagall knew Hagrid likes going out with McGonagall ( $\Pi = 1$ ) more than going out alone ( $\Pi = 0$ ), but that he likes going out with her to Hog's head the best ( $\Pi = 2$ ). Hagrid knew McGonagall likes going out to Hog's Head equally whether with or without Hagrid ( $\Pi = 1$ ), but that she only likes going to the Leaky Cauldron alone ( $\Pi = 0,1$ ).

### Q1.a | Payoff Matrix

First, use the information about their preferences to setup the payoff matrix.

### Q1.b | Best Responses

Second, use the boxing method to find both players best responses above.

### Q1.c | Nash Equilibrium

Third, find the Nash Equilibrium. Since they couldn't communicate, could they use this to figure out which location to go?

## Question 2 (of 2) | The Dumbledore Memorial

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

Aurelius	Aberforth	Ariana
75	10	20

Since the statue will be installed in public space, any of the three are able to enjoy the statue regardless of whether they helped pay for it. It costs 90 galleons per year to operate and maintain the memorial.

### Q2.a | Visit Count

How many of the three Dumbledores would visit the memorial if it were built?

### Q2.b | Continued Funding

There's an endowment to fund the memorial for its first year. Simply considering their financial interests, how many Dumbledores will contribute to the memorial's continued operation after the endowment runs out?

### Q2.c | 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?

### Q2.d | Marginal Social Benefit

What is the marginal social benefit from the memorial?

### Q2.e | Efficiency

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