

# Welcome to the Microeconomics Laboratory

## Welcome

Thank you for participating in this study. At the end of the experiment, your earnings over the course of the experiment will be paid to you in cash. Your decisions and earnings will be kept strictly anonymous.

## The Experiment

In this experiment, you will participate in a several auctions. These auctions will take place in a series of rounds. At the beginning of a round, you will be randomly assigned to a group with three other individuals in this room and then bid in a sequence of three slightly different auctions against the other members of your group. At the conclusion of these three auctions, the round ends and a new round begins. At the start of this new round, you are assigned to a new group of three and repeat the sequence of three auctions. You will play a total of 30 rounds. Since there are three auctions in each round, you will make bids in a total of 90 auctions.

For participating in the experiment, we will start with 62 tokens in your earnings account, where each token is worth 8 cents (meaning you will start the game with  $62 \times 0.08 = \$4.96$  in your earnings account).

## An Auction

At the beginning of each round, each player is assigned a “valuation” for the entire round, which means each player maintains the same valuation throughout all three auctions of any given round. This valuation for each player will be a randomly drawn number between zero and 100, with each number between zero and 100 being equally likely.

At the beginning of each auction, each player bids a number of tokens between zero and 100. The group member who bids the highest number of tokens in the group “wins” the auction.

The winner of the auction will have the number of tokens equal to his valuation added to his earnings account. However, the number of tokens the winner bid will be subtracted from this winner’s earnings account. This means that if the winner’s valuation is greater than his or her bid, the winner’s earnings account grows, while if the winner’s valuation is less than his or her bid, the winner’s earnings account shrinks.

The other three members of the group who do not win the auction will have zero tokens added and zero tokens subtracted from their earnings accounts.

## A Round

Each round will consist of three separate auctions, each auction differing only in what you know about the valuations of the other players in your group.

In the first auction in a round, you will bid knowing only your own valuation.

In the second auction, you will know the valuation of one other player, say Player 1, in your group, as well as your valuation. Player 1 will also know your valuation as well as his own valuation. In sum, both you and Player 1 will know each other's valuations. Similarly, the two other players, say Player 2 and 3, will know each other's valuations.

In the third auction, you will know the valuations of all other players in your group, as well as your valuation. Other players in your group will have similar information. In sum, all four players in your group will bid knowing each other's valuations.

### Example:

#### Auction 1

In the first auction in a round, say you encounter the following choice screen:

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Bidder	You	Player 1	Player 2	Player 3
Valuation	26	?	?	?

I choose to bid \_\_\_\_\_ tokens.

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This screen tells you that your valuation for this round is 26 tokens.

Say you bid 2 tokens and all of the other players bid less than 2 tokens. Then 26 tokens will be added to your earnings account for winning this auction, while 2 tokens will be subtracted for your account due to your bid. This means that the total number of tokens in your earnings account will increase by  $26 - 2 = 24$  tokens ( $24 * \$0.08$ ) if your bid of 2 tokens wins this auction. However, if you bid 2 tokens and one or more of the other players in your group bid more than 2 tokens, then another player wins this auction and your earnings account will not change after this auction.

Alternatively, say you bid 90 tokens and the other three players in your group bid less than 90 tokens. Then 26 tokens will be added to your earnings account for winning the auction, but 90 tokens will be subtracted from your earnings account due to your bid. This means that the total number of tokens in your earnings account will decrease by  $26 -$

90 = 64 tokens if your bid of 90 tokens wins this auction. However, if you bid 90 tokens and one or more of the other three players in your group bid more than 90 tokens, then another player wins this auction and your earnings account will not change after this auction.

You will not be informed whether or not you won this first auction, or of the winning bid in this first auction, until after all three auctions in the round are completed.

### **Auction 2**

In the second auction of the round, say you encounter the following choice screen:

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Bidder	You	Player 1	Player 2	Player 3
Valuation	26	94	?	?

I choose to bid \_\_\_\_\_ tokens.

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This screen confirms that your valuation stays the same for the entire round (26 tokens in this case). It also shows that Player 1's valuation for this round is 94 tokens. Player 1 also sees the screen which shows that his valuation is 94 tokens and your valuation is 26 tokens. Remember that Player 2 and Player 3 are also seeing each other's valuations while they do not see the valuations for you and Player 1.

The rest of the auction works identically to Auction 1. For example, if you bid 24 tokens and the second highest bid was 20 tokens, then 26 tokens will be added to your account and 24 tokens will be subtracted from your account. This means your earnings account will increase by  $26 - 24 = 2$  tokens if your bid of 26 tokens wins this auction. All other player's earnings accounts do not change.

You will not be informed of whether or not you won this second auction, or of the winning bid in this second auction, until after all three auctions in the round are completed.

### Auction 3

In the third auction of the round, say you encounter the following choice screen:

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Bidder	You	Player 1	Player 2	Player 3
Valuation	26	94	9	98

I choose to bid \_\_\_\_\_ tokens.

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This screen once again confirms that your valuation stays the same for the entire round (26 tokens in this case). It also shows that Player 1's valuation for this round stays at 94 tokens, and that Player 2's valuation for this round is 9 tokens, and Player 3's valuation for this round is 98 tokens. Remember that all players are seeing the above valuations.

The rest of the auction works identically to Auctions 1 and 2. For example, if you bid 13 tokens, Player 1 bid 50 tokens, Player 2 bid 10 tokens, and Player 3 bid 2 tokens, then 94 tokens will be added to Player 1's account and 50 tokens will be subtracted from Player 1's account. This means Player 1's earnings account will increase by  $94 - 50 = 44$  tokens if his bid of 50 tokens wins this auction. All other player's earnings accounts do not change.

## End of a Round

After all three auctions in a round, you will be informed of the winning bid in each round, and your earnings in each of the three auctions.

### Example:

In round 1, say that you bid 2 tokens in auction 1, 7 tokens in auction 2, and 90 tokens in auction 3. Furthermore, say the highest bid in your group was 2 tokens in auction 1, 50 tokens in auction 2, and 94 tokens in auction 3. This information will be presented to you in the following format.

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Bidder	You	Player 1	Player 2	Player 3
Valuation	26	94	9	98

### Round 1, Auction 1

Your bid was 2 tokens, the winning bid was 2 tokens. Your payoff was 22 tokens.

### Round 1, Auction 2

Your bid was 7 tokens, the winning bid was 50 tokens. Your payoff was 0 tokens.

### Round 1, Auction 3

Your bid was 90 tokens, the winning bid was 94 tokens. Your payoff was 0 tokens.

Your total earnings for this round were 22 tokens ( $22 * \$0.08 = \$1.76$ )

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After seeing this summary screen, you know your earnings account will have increased by 22 tokens from what it was prior to this round. You will then be randomly assigned to a new group of three new partners. Each player will be given a new valuation for this new round, and you and your new group will once again participate the sequence of the three auctions described above. A total of 30 rounds will be played.

## Things to Remember

Your earnings account starts with 62 tokens, where each token is worth 8 cents.

In each round...

- Each player is randomly assigned to a group with three other players.
- Each player is randomly assigned a “valuation” between 0 and 100, with each number between 0 and 100 being equally likely.
- Each player will engage in a sequence of three auctions against his or her other group members,
  1. In the first auction, each player will only know his or her own valuation.
  2. In the second auction, each player will know his or her own valuation and the valuation of one other player in his or her group.
  3. In the third auction, each player will know his or her own valuation and the valuations of all three other players in his or her group.
- In each auction, each player will “bid” a number between 0 and 100. The bidder who bids the highest number of tokens in each group wins, and has the number of tokens equal to his valuation added to his earnings account and the number of tokens he bid in that auction subtracted from his earnings account. The earnings accounts for the three other group members who did not win the auction do not change.

After all three auctions...

- Each player is informed of the winning bid in each auction, as well as his or her earnings in each auction.
- A new round starts. Each player is assigned to a new group with three other players and given a new valuation. The three auctions are then repeated.

A total of 30 rounds will be played. Your final earnings will equal your initial earnings account level of 62 tokens, plus any additions to your earnings account from the auctions you win, and minus the number of tokens you bid in the auctions you won. For each token in your final earnings account you will be paid 8 cents.

**Good Luck!**