



Bids & Brains Rulebook

MATHEMATICS CLUB



§ Round 1 | A long road to bidding

1. Participants must compete in teams of two. Anyone who does not have a teammate will be assigned one.
2. Each team will be given 30 minutes to solve a question paper consisting of a total of 10 questions. Six of these questions will be based on constructing strategies, while the remaining 4 will contain questions themed around the baskets of the auction.
3. The top 20 teams will qualify to the next round.
4. Any use of online resources is prohibited.
5. Use of calculators of any kind is prohibited.

§ Round 2 | Bidding with brains?

1. Each team is given a total currency of 10000 (worthless) diamonds which they can use to bid for questions.
2. There are a total of 24 questions which have been divided into **four baskets** in an even manner:
 - Probability and Counting
 - Linear Algebra
 - Calculus
 - Geometry and Number Theory
3. Of the 6 questions in each basket, each basket will contain:
 - 2 **Bronze** questions worth 20 points each,
 - 3 **Silver** questions worth 50 points each, and
 - 1 **Gold** question worth 100 points each.

The nature of the question will be revealed to the participants before bidding begins for the same.

4. The auction will consist of four periods of bidding, in each of which one basket will be completely auctioned off. Once all baskets have been auctioned off, all remaining teams proceed to the third (final) round.

→ The Bidding Process

The bidding for each question will consist of two stages. The **first stage** is as follows:

1. The question is displayed to all teams (for a maximum duration of 15 seconds) and the nature of the question is revealed. Participants are not allowed to take a photo of / note down the question being displayed.
2. Each team then submits their bid amount (in units of worthless diamonds) within 15 seconds in a silent mode without revealing the bid amount to any of the other teams.
3. Once all bid amounts are received, the question is directly awarded to the top 4 bidders.

The **second stage** is as follows:

1. Now, the question is opened for live bidding to the remaining teams, with the starting bid being the 5th highest silent bid amount.
2. Increments in the live bidding must be at least $\min\{5\% \text{ of the current highest bid}, 100 \text{ worthless diamonds}\}$.
3. The bidding continues until only one bidder is left. The question is awarded to the bidder with the highest bid.

Note: If any team is unable to produce the promised amount of worthless diamonds when being awarded the question, the team in consideration will be eliminated from the auction and the question will be awarded to the next highest bidder who can produce their promised highest bid. As such, each team is advised to keep track of the amount of worthless diamonds they have with them after each purchase.

§ Round 3 | Braining your bids!

1. All teams are provided the questions that they have won in the previous round.
2. All teams are also provided with a question paper containing 3 additional **coal** questions (each question being worth 10 points).
3. Each team will be given 30 minutes to solve all the questions.
4. The marking scheme is as follows:
 - **Gold** questions: +100 points for a correct solution, -35 points for an incorrect or incomplete solution
 - **Silver** questions: +50 points for a correct solution, -15 points for an incorrect or incomplete solution
 - **Bronze** questions: +20 points for a correct solution, -5 points for an incorrect or incomplete solution
 - **Coal** questions: +10 points for a correct solution, 0 points for an incorrect or incomplete solution
5. Any use of online resources is prohibited.
6. Use of calculators of any kind is prohibited.

→ Supreme Auctioneers

The team with the highest number of points in the end will be declared the **Supreme Auctioneers**. In case of a tie, the team with the higher bidding efficiency (points earned per worthless diamonds spent) will be declared the **more Supreme Auctioneers**.