2018 High School Integration Bee Official Rules

1. Competition is open to students enrolled in high school or home school in the spring 2018 semester. In order to allow as many schools to participate as possible, the organizers reserve the right to limit each school to 10 participants. Any additional participants from a particular school will be considered alternates and will be seated by lottery at the event until the limit has been reached. **Competition is limited to 50 participants.** *Students registered in advance who do not arrive by 6:45 pm will be moved to the alternate list and seated by lottery.*

2. Competition will be held on Thursday, April 12, 2018 at 7:00 pm in room S2 109.

3. All integrals in the competition will be indefinite or proper definite integrals of a single variable. Integrals will be presented in view of the audience and participants on an overhead projector. Correctness will be determined by judges whose decisions are final.

    (a) Only the final answer counts in the determination of correctness. Simplification is not required.

    (b) Final answers may not be expressed in terms of other integrals.

    (c) Definite integrals must be evaluated.

    (d) Correct answers must include "$+C$," if appropriate.

    (e) Absolute values, if required, must be present.

4. **Preliminary Round.** If there are 21 or fewer participants, there will be no Preliminary Round. In this case competition will begin with regular rounds. If there are more than 21 participants, there will be at least one Preliminary Round. In a Preliminary Round, participants

    - will sit separately from spectators, in designated seats at the front of the room, and will be provided with paper and pencils.

    - are not allowed to consult notes, books, calculators or other people at any time during the competition.

    - will be shown an integral and will have $1^1/_2$ **minutes** (90 seconds) to write the correct answer in the box on the paper provided.

    - must put pencils down and raise their papers when time is called.

    A participant who does not have the correct answer in the box on their paper when time is called will be eliminated from the competition. Passes are not allowed. If necessary, the organizers may call a second preliminary round, in order to reduce the number of competitors to approximately 21. Students who advance to the regular rounds will be referred to in these rules as **contestants** or **competitors**.

5. The order in which competitors will compete for each regular round will be determined by lottery; each participant who is registered as of 12:00 noon on Thursday, April 12 will be assigned a random seating number. Contestants from the alternates list will be seated after the advance-seated students by drawing lots after the Preliminary Round. Contestants will sit in the order determined by the lottery. Participants who have been eliminated must sit with the other spectators.

6. Contestants are not allowed to consult notes, books, calculators, or other people at any time during the competition. Contestants may not bring anything other than their free pass to the board on their turn.

7. Contestants will each receive one **free pass** ("**pass**") token or ticket.

   (a) The pass may be redeemed during any regular or semifinal round. Passes are not valid during the Preliminary Round(s), Final Round, or Run-Off Round(s).

   (b) A contestant may redeem their pass on their turn in lieu of completing an integral. They will then be called to the board in the next group.

   (c) The pass must be redeemed before time is called.

   (d) One **turn** consists of one completed integral, correct or incorrect. A contestant's turn ends when time is called and they do not redeem a pass.

8. **Regular Rounds (Rounds 1-4).** In each **round**, contestants will be called to the white board at the front of the room in groups of three, until all contestants have had one turn. At the end of a round a group may consist of fewer than three competitors. Each group will be presented with a single integral. The contestants will have **2 minutes** to write the correct answer in their designated area on the board and box or circle it. Dry erase markers will be provided. When multiple contestants are at the board simultaneously, contestants will be separated by partitions. Contestants must stay close enough to the board that they cannot see their competitors' work.

   (a) Contestants must cap their pen when time is called. Marks made after time is called will not be evaluated.

   (b) Contestants who evaluate their assigned integral successfully will proceed to the next round. Contestants who do not evaluate the integral correctly and do not elect to use their pass will be eliminated from the competition.

   (c) Integrals will increase in difficulty with each round.

   (d) In the event that all remaining contestants are eliminated in one round, the contestants for that round will be reinstated and the round repeated.

   (e) If only one contestant remains at the end of a round, they will be awarded First Prize, ending the Bee; there will be no Second or Third Prizes awarded.

   (f) If two or three contestants remain, they will compete in the **Final Round**.

   (g) If four or more contestants remain at the end of Round 4, contestants will compete in one or more **Semifinal Rounds**.

9. **Semifinal Rounds.** Semifinal rounds will proceed as in Rounds 1-4, except that contestants will have $2^1/_2$ **minutes** to complete each integral.

   (a) Contestants must cap their pen when time is called. Marks made after time is called will not be evaluated.

   (b) Contestants who evaluate their assigned integral successfully will proceed to the next round. Contestants who do not evaluate the integral correctly and do not elect to use their pass will be eliminated from the competition.

   (c) Integrals will increase in difficulty with each round.

   (d) In the event that all remaining contestants are eliminated in one round, the contestants for that round will be reinstated and the round repeated.

   (e) If only one contestant remains at the end of a round, they will be awarded First Prize, ending the Bee; there will be no Second or Third Prizes awarded.

   (f) If two or three contestants remain, they will compete in the **Final Round**.

10. **Final Round.** All finalists will be called to the board. They will receive a series of five integrals. The time allowed for each integral is **3 minutes**.

    (a) Each correct answer is worth 1 point. Each incorrect answer is worth 0 points. Passes are not allowed.

    (b) The contestant with the highest score is the winner. The second highest score will receive the second place prize. The third highest will receive the third place prize.

    (c) In the event of ties there will be a **run-off**.

11. **Run-off Rules.**

    (a) Only tied contestants will participate in the run-off.

    (b) Run-off rounds will continue until all ties are broken. The first will proceed as in the Final Round, but with three integrals. If the tie is still unbroken, the next round will be "sudden death." In **sudden death**, scores are updated after each integral. Sudden death rounds will continue until all ties are broken.

    (c) If two finalists are tied for first place, the second place finalist (if present) will be awarded Third Prize. The winner of the run-off will receive First Prize and the other will receive Second Prize.

    (d) If two finalists are tied for second place, the first place finalist will be awarded First Prize. The winner of the run-off will receive Second Prize, and the other will receive Third Prize.

12. Prizes are to be determined based on available funding. All prize winners will will receive certificates of achievement and also be invited to compete in the Integration Bee for Fresno State students on Thursday, April 26.

13. Rules are subject to change without notice and may be amended as needed per announcement before or at the Bee.