



GALLOP ROUND RULES

1. The Gallop Round will consist of 24 questions to be solved in 60 minutes.
2. The questions will be divided into 8 sets of 3 questions each, and you ***must submit the answers to one set*** before accessing the problems for the next. This means you must strategize when to submit each set (incomplete or not) to ensure you get access to as many questions as possible.
3. Once you submit the answer form for one of the sets, the password for the next set will be on the form submission screen, so make sure you note it down, otherwise you may waste valuable time getting the password from us!
4. The problems will get progressively more difficult, and later problems will be worth more points.
5. Submissions will be scored immediately and a live score of all participating teams will be available during the competition. Prepare for the adrenaline rush!

GALLOP SET 4

14 points per question

[Gallop Set 4 Answer Submission Form](#)

[Gallop Live Scores](#)

10. Let $x_1 \neq x_2$ such that $3x_1^2 - hx_1 = b$ and $3x_2^2 - hx_2 = b$. What is $x_1 + x_2$, expressed in terms of h ?

11. A mysterious drawer consists of 5 shirts - 3 green ones and 2 gold ones. Each day, Evan the turtle picks out 1 shirt without putting it back. If he picks out the green one, the number of green shirts remaining in the drawer doubles. If he picks out a gold one, the number of remaining gold shirts triple. What is the probability that Evan the turtle picks out a gold shirt on day 3?

12. Three jockeys - Leslie, Boyd, and Shelton - race clockwise against each other on a circular track, starting in different positions and moving at constant speeds. Leslie starts at the beginning of the track (on the finish line), and completes a lap every 3 minutes. Boyd starts with 40% of a lap completed, and it will take him 3 more minutes to fully complete the lap. Shelton takes 7 minutes to complete a lap, but will take only 5 minutes to complete a lap from her start position. How long (in minutes) will it take until all three of them first line up along the finish line?