A typical 1ˢᵗ Page of the Online SIN Contest

If you want to be eligible for a Prize, try to get a copy of the *Cover Page for Student Solutions* and bring it with you to the Contest. If you can't, you can still follow its instructions when you log in to the Contest.

UNIVERSITY OF WATERLOO

The 55ᵗʰ Sir Isaac Newton Physics Contest
Department of Physics & Astronomy
University of Waterloo
Waterloo, ON, N2L 3G1, Canada

Level and Discipline:	Grade 12 Physics
Date of Contest:	May 4ᵗʰ, 2023
Duration of Contest:	2 Hours

General Instructions

1. This is a prize contest, not a university entrance exam. The results are only used to decide Contest Rankings and SIN Prize awards. It is meant to be fun and challenging.

2. If you wish to be eligible for a SIN Prize award, it is important to include legible written solutions (see below). Otherwise, you do not need to provide solutions.

3. Your numerical answer may differ from our "rounded off" answer. Choose the closest answer.

4. You have two hours to write this Contest. Good Luck!

SIN Checklist
☐ Sense of humor, ability to have fun with a challenge
☐ Pencil**s**/pen**s**, paper
☐ Calculator

Written Solutions Student Instructions (Only needed if you wish to be eligible for a prize)
The *Cover Page for Student Solutions* has important instructions for you to follow.
If you didn't bring your own, you will have time to view it after you log in to the Contest.
Please hand in your written solutions to your teacher with your *Cover Page* on top.

Written Solutions Teacher Information
All contestants will have their multiple-choice answers computer marked to generate a computer score.
If a computer score is high enough, we will ask the teacher to send a *pdf* of their solutions for hand marking.

Resources

Examples of Significant Zeros

Number	10	10.	10.0
# of Significant Digits	1	2	3

Use $g = 10.0 \frac{m}{s^2}$, $G = 6.67 \times 10^{-11} \frac{Nm^2}{kg^2}$

Handy Triangles

Marking Scheme
All questions are of equal value:
Correct Answer $= +4$, Unanswered $= 0$, Incorrect Answer $= -1$ (discourages guessing)