

Week #5 Winter 2023



Problem of the Week



There are four boxes of caramel apples. Each of the boxes contains 100 caramel apples. In three of the boxes, each caramel apple weighs exactly 12 ounces. In the fourth box, each of the caramel apples weighs exactly 12.1 ounces. The cardboard material for each of the four boxes weighs the same. None of the boxes are labeled and you cannot tell by looking which box is the “fourth” box. In front of you, there is a digital scale. It is low on battery and can only be used once. It is also faulty: any amount of goods that weighs at most 120.3 ounces will register the correct weight, but any amount of goods that weighs more than 120.3 ounces will produce an error message. How can you determine which box has the 12.1 ounce apples by using the scale exactly once?

Undergraduates may submit solutions to the Mathematics Department office, 1150 FAB [or](#) by email to waynepotw@gmail.com by noon 2/28/2023. Include your name, ID number, and whether you have completed Math 2030 (or higher). For more information go to <https://clas.wayne.edu/math>. Solutions will be posted online and throughout the math department after the deadline.