



Problems 12/24-26/2025

(Christmas)

Solutions to the problems below
will be published on Monday 12/29/2025

Problem 1. A baking tray can fit $n \in \mathbb{N}$ gingerbread cookies. Show that the same tray can fit $4n$ cookies with a diameter twice as small.

Problem 2. Santa Claus has a spherical sack of radius R . Since Santa is concerned about Polish students' reluctance to study mathematics, all children will receive textbooks of this wonderful subject this year. The books have a very practical square shape. What is the maximum possible size (area of the cover) of a textbook so that it fits inside the sack? Assume that the book is infinitely thin.

Good luck!

We encourage you to submit your solutions via the website
<https://mathlovers.eu/submit-solution/>!