



Problems - 07/21/2025

The solutions to the problems below
will be published on Thursday 07/24/2025

Problem 1. Jack has his own garden. There are 15 potted flowers arranged in a straight line, spaced 1 meter apart. Additionally, on the same line, 2 meters before the first flower, there is a water well. Jack has a watering can with a capacity of 5 liters, which he fills from the well and then uses to water the flowers in any order he chooses, using 1 liter per flower. To carry 1 liter of water for 1 meter, Jack uses 1 joule of energy. He starts at the well by filling the watering can to full capacity and then waters 5 flowers. When the water runs out, he returns to the well. He repeats the process until all the flowers are watered. Jack is lazy, so he wants to use as little energy as possible to carry the water (carrying the empty can is ignored). What is the minimum number of joules Jack will use? Provide an example route to make his dream come true.

Problem 2. Find a polynomial with integer coefficients that has $\sqrt{2} + \sqrt[3]{3}$ as a root.

Good luck!

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