





## Problems – 06/23/2025

The solutions to the problems below  
will be published on Thursday 06/26/2025

-  **Problem 1.** An urn contains white, blue and black balls. We know that there are 6 more white balls than blue balls and the probability of drawing a black ball in a single draw is  $\frac{1}{2}$ , while the probability of drawing a blue ball is  $\frac{1}{7}$ . How many balls of each colour are in the urn?
-  **Problem 2.** Two real numbers  $a$  and  $b$  are given such that the numbers  $a + b$ ,  $ab\sqrt{a}$  and  $ab\sqrt{b}$  are rational. Prove that  $a$  and  $b$  are also rational.

*Good luck!*