



## Problems 11/3/2025

Solutions to the following problems  
will be published on Thursday, 11/6/2025

- Problem 1.** For each positive integer  $t$ , let  $d(t)$  be the smallest positive integer whose factorial is divisible by  $t$  (for example,  $d(6) = 3$ , because  $3! = 2 \cdot 3$  is a multiple of 6, while  $2!$  and  $1!$  are not). Solve the equation

$$d(n) = \frac{n}{2}.$$

- Problem 2.** Given an acute triangle  $ABC$  with its circumcircle. The tangents at points  $B$  and  $C$  meet at  $D$ , the tangents at points  $C$  and  $A$  meet at  $E$ , and the tangents at points  $A$  and  $B$  meet at  $F$ . Prove that  $AD$ ,  $BE$ , and  $CF$  are concurrent.

*Good luck!*

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