



UNIVERSITY OF WISCONSIN  
**PLATTEVILLE**  
DEPARTMENT OF MATHEMATICS

PROBLEM OF THE WEEK #3  
(Spring 2024)

Given a positive integer  $k$ , what is the largest value of  $n$  for which  $\frac{n! - k}{n - k}$  is an integer?

[Please fully explain your answer.]

Email solutions to [kwonmi@uwplatt.edu](mailto:kwonmi@uwplatt.edu) by 2:00pm on Wednesday, February 14, 2024.

Every week, the best solution submitted earns a \$10 Platteville gift certificate; the top scorer each semester also wins a cash award. Good luck!

You can always see the Problem of the Week (and complete rules) online at:

<http://uwpmath.weebly.com/>