



UNIVERSITY OF WISCONSIN  
**PLATTEVILLE**  
DEPARTMENT OF MATHEMATICS

PROBLEM OF THE WEEK #4  
(Fall 2020)

Evaluate  $\int_0^{\infty} \left( x - \frac{x^3}{2} + \frac{x^5}{2 \cdot 4} - \frac{x^7}{2 \cdot 4 \cdot 6} + \dots \right) \left( 1 + \frac{x^2}{2^2} + \frac{x^4}{2^2 \cdot 4^2} + \frac{x^6}{2^2 \cdot 4^2 \cdot 6^2} + \dots \right) dx.$

[Please fully explain your answer.]

Email your solution to [kwonmi@uwplatt.edu](mailto:kwonmi@uwplatt.edu) by 4:00 P.M. on Wednesday, October 14, 2020.

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/>